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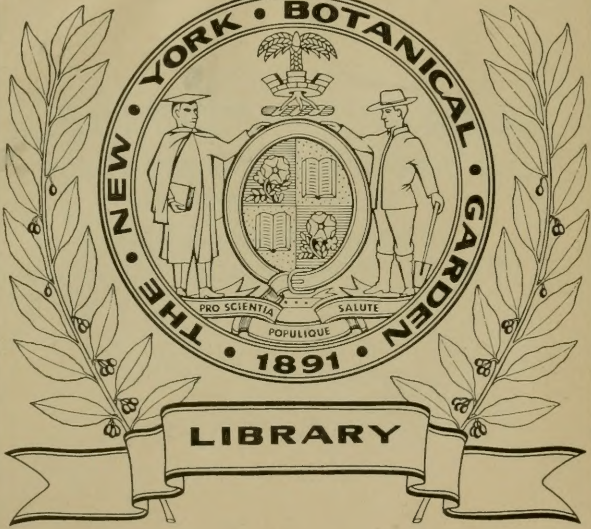

ARBORETUM ET FRUTICETUM BRITANNICUM;

OR,

THE TREES AND SHRUBS OF BRITAIN,

Native and Foreign, Hardy and Half-Hardy,
PICTORIALLY AND BOTANICALLY DELINEATED,
AND SCIENTIFICALLY AND POPULARLY DESCRIBED;

WITH
THEIR PROPAGATION, CULTURE, MANAGEMENT,
AND USES IN THE ARTS, IN USEFUL AND ORNAMENTAL PLANTATIONS, AND IN
LANDSCAPE-GARDENING;
PRECEDED BY A HISTORICAL AND GEOGRAPHICAL OUTLINE
OF THE TREES AND SHRUBS OF TEMPERATE CLIMATES
THROUGHOUT THE WORLD.

BY J. C. laudius LOUDON, F.L. & H.S. &c.
AUTHOR OF THE ENCYCLOPÆDIAS OF GARDENING AND OF AGRICULTURE.

IN EIGHT VOLUMES:
FOUR OF LETTERPRESS, ILLUSTRATED BY ABOVE 2500 ENGRAVINGS;
AND FOUR OF OCTAVO AND QUARTO PLATES.

VOL. I.

HISTORY, GEOGRAPHY, AND SCIENCE; AND DESCRIPTIONS, FROM
*R*ANUNCULA'CEÆ TO STAPHYLEA'CEÆ, P. 494., INCLUSIVE.

SECOND EDITION.

LONDON:
HENRY G. BOHN, YORK STREET, COVENT GARDEN.
1854.

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v. 1

TO HIS GRACE,

HUGH, DUKE OF NORTHUMBERLAND, K.G.

&c. &c.

MY LORD DUKE,

IN dedicating to Your Grace the accompanying Volumes, I am anxious to show how fully I appreciate the encouragement which your ancestors and yourself have always given to gardening pursuits, and more especially to the introduction and cultivation of foreign trees and shrubs. How much the British Arboretum is indebted to the noble family of Northumberland, for the introduction of trees and shrubs from America during the last century, is evinced by the *Hortus Kewensis*, *Miller's Dictionary*, and other works which record the names of the first introducers of foreign plants; and how various and magnificent are the specimens of foreign trees which exist in the grounds at Syon, the numerous portraits of them which are given in the Volumes now submitted to the public bear ample testimony.

For the kindness which Your Grace has evinced, in having had these portraits made expressly for my work, I am desirous that this dedication should be considered as a public memorial of my lasting gratitude.

I have the honour to subscribe myself
Your Grace's
Very obedient humble Servant,
THE AUTHOR.

Bayswater, *May* 20. 1838.

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PREFACE

TO

THE SECOND EDITION.

WHEN the *Arboretum Britannicum* was first published it appeared in Numbers; and, as all the trees were drawn from nature, they were published as they could be obtained, blanks being left for those of which good specimens could not be found. These blanks were afterwards, in most cases, filled up; but sometimes it was discovered that different names had been given to the same plant, and consequently that there was only one tree to fill up the spaces that had been left for two names; while, in other cases, the same tree was found so different at different periods of its growth, as to render two or more plates of it desirable. These circumstances occasioned many inaccuracies in the plates, which were noticed in the errata; but shortly previous to Mr. Loudon's death he had all these faults corrected, preparatory to a new impression of the plates being printed off; and it is this corrected edition that is now offered to the public.

J. W. LOUDON.

Bayswater, March 7. 1844.

PREFACE.

The main object which induced the author to undertake this Work was, the hope of diffusing more generally, among gentlemen of landed property, a taste for introducing a greater variety of trees and shrubs in their plantations and pleasure-grounds. He had observed, for a number of years, that, though many new and beautiful trees and shrubs were annually introduced from foreign countries into our botanic gardens and nurseries, yet the spread of these plants in the grounds of country residences was comparatively slow; and that not only the new sorts were neglected, but many of the fine old species and varieties, which had been in British nurseries for upwards of a century, were forgotten by planters, and had ceased to be propagated by commercial gardeners. In short, it appeared to the author, that the general taste of the country for trees and shrubs bore no just proportion to the taste which prevailed in it for fruits, culinary productions, and flowers. It also appeared to him, that, while the numerous horticultural societies now established in the British Islands had powerfully promoted the general taste for horticultural and floricultural productions, they had rather neglected arboriculture and landscape-gardening.

Viewing trees and shrubs as, next to buildings, the most important ornaments which can be introduced into a country; and considering them, in this respect, greatly superior to herbaceous plants, from the little care that trees and shrubs require when once properly planted, and their magnitude, and permanent influence when grown up, on the general scenery of the country; the author felt desirous of pointing out the great importance of their more general distribution and culture. In order to impress this on the minds of proprietors and their families, and especially on the rising generation among them, he thought it best to adopt, as the main feature of his plan, the description and portraiture of such species and varieties of trees and shrubs as are actually in cultivation in the country, and as grow vigorously in it; referring to gardens or grounds within a limited distance of London, where these species or varieties may be seen in a living state, and to nurseries where they are propagated for sale, and stating the price for which they might be purchased in England, in France and Germany, and in North America. He has thought it advisable to give, not only botanical specimens, but portraits of the greater number of species of trees; in order, by a palpable representation of their forms and magnitudes, to make a stronger impression on the mind of the reader. These pictorial illustrations are of two kinds: first, portraits of trees of ten or twelve years' growth, taken from specimens growing in 1834, 1835, or 1836, within ten miles of London, and all drawn to the same scale of 1 in. to 4 ft.; and, secondly, of full-grown trees, also all drawn to one scale, viz. 1 in. to 12 ft., and for the most part growing within the same distance of London.

The use of the first class of portraits is, to give a palpable idea of the general magnitude, form, and character, which different species and varieties assume when growing in the same soil and climate, even in so short a period as ten or twelve years after planting. A slight comparative view of these portraits shows that the growth of some trees is much more rapid than that of others; and that while the species of some genera when young are comparatively monotonous in their general form, those of the species of other genera of the same age have marked and characteristic features. Hence the valuable assistance afforded by such portraits in the choice of trees for the purposes of landscape-gardening. To solve the problem of ascertaining the species capable of producing any desired effect of wood, or of trees, in a given locality, and in a given time, it is only necessary to turn over the portraits which are contained in the last four volumes of this Work, and to select those species, the portraits of which exhibit trees of such forms and magnitudes as will produce the effect desired.

The second class of portraits represents full-grown trees of the same species as those of which portraits in their young state are given; and these, for the greater part, are drawn from trees within ten miles of London, and all, with one or two exceptions, are to one scale. The object in giving these portraits of full-grown trees is, to show the magnitude and character which particular species attain when they arrive at maturity, and to be a guide to the planter, not only in many particulars having reference to pictorial effect, but also with respect to the uses of trees as productive of timber, shelter, and shade.

These portraits of trees in their young and mature state, which are contained in the last four volumes, together with the engraved botanical specimens, and the scientific and popular descriptions contained in the four volumes of letter-press, are calculated, as the author thinks, to create that interest in trees and shrubs in those who have not previously paid much attention to the subject, to produce which, as already observed, has been his grand object in undertaking this Work.

In addition to the trees and shrubs which have been ten or twelve years in the country, and which are purchasable in British nurseries, those of more recent introduction, which are comparatively scarce, are also described or noticed; as are some which were introduced at former periods, and have been lost, and others which are known to botanists, but which have not yet been introduced.

Besides notices of new and little known hardy trees and shrubs, or of such as are described by botanists but not yet introduced, some attention has been paid throughout the Work to trees and shrubs which, though they will stand through the winter in mild seasons, without protection in favourable situations, or with protection in situations and seasons less favourable, in the climate of London, yet cannot be recommended for general purposes, and are therefore generally described by gardeners as only half-hardy. These half-hardy species have been noticed, because there is perhaps no scene in a British garden more interesting, than one in which the plants of warm countries, usually seen in green-houses or conservatories, appear in a flourishing state in the open air; and also because the culture and management of such plants call forth a higher degree of scientific knowledge and attention on the part of the gardener, and therefore contribute to his improvement and consequent usefulness. Half-hardy trees and shrubs of the more tender kinds are generally cultivated against what is in this Work called a conservative wall; that is, a wall which may be flued or not according to circumstances, but which admits of putting up a temporary projecting roof, or some other means of protection, during the winter season. Such walls are at present not very generally in use for ornamental exotics; but so great are the interest and beauty which they are calculated to display when properly designed, planted, and managed, that in a few years they will probably be as general as fruit walls; and, as ornaments to a country residence, connected with the flower-garden and shrubbery, will be considered as ranking next to the conservatory and the green-house.

Having given this notice of the objects which have led to the undertaking of this Work, and a general outline of the plan pursued in it, the reader is referred to the Introduction, and to the Explanatory References which precede the Table of Contents, for further details.

The engraving and printing of this Work, for which collections had been making for several years (see the *Gardener's Magazine*, vol. vi., for 1830, p. 582. and p. 718.), was begun in August, 1834; and it has been published in Numbers, the first of which appeared in January, 1835, and the 63d and last on the 1st of July, 1838. It was originally intended to include in it a generalisation of the whole subject of the trees and shrubs of temperate climates; but, finding the Work had increased to more than double the extent originally contemplated, it has been thought advisable to publish the generalisation alluded to separately; and it will accordingly appear at some future time, in one volume, under the title of an *Encyclopædia of Arboriculture.*

It now remains for the author to acknowledge his obligations to the numerous persons who have given him information for this Work. He refers to the List of Contributors, p. xv., and to every individual there named he begs to return his most sincere thanks. He thanks, in a more particular manner, the Council of the Horticultural Society of London, for having granted him permission to take portraits of the trees in the Society's Garden, and to examine and make drawings from the botanical specimens sent home by Douglas and others, in their herbarium; as well as for the information communicated by their head gardener, Mr. Munro, and the foreman of their arboretum, Mr. Gordon. The author is deeply indebted to Messrs. Loddiges, with reference to their arboretum at Hackney, and for the kind and liberal manner in which they have at all times, during the last ten years, since he began to prepare for this Work, not only allowed him to send artists to make drawings, and supplied him with specimens, but permitted him to select these himself; and, in short, to use their unrivalled collection of hardy trees and shrubs as if it had been his own. To the Linnean Society, and their librarian, Professor Don, the author is much indebted for the loan of books, and for permission to examine the specimens of trees and shrubs in the Linnean herbarium; as he is to A. B. Lambert, Esq., V.P.L.S., &c., for the use of his magnificent library and unique herbarium, and for the living specimens of the Coníferæ from Boyton; and to W. T. Aiton, Esq., F.L.S., H.S., &c., Her Majesty's Garden-Director at Kew, for specimens of the trees and shrubs in the arboretum there, for the loan of manuscripts, and for other valuable information and assistance, communicated either directly by himself, or through that scientific and assiduous botanist and cultivator, Mr. Smith, foreman of the Kew Botanic Garden.

To His Grace the Duke of Northumberland the author is indebted, not only for access for himself and artists to examine and take portraits of the splendid exotic trees at Syon, but for drawings of upwards of a hundred of the largest and rarest of those trees, made for this Work by G. R. Lewis, Esq., at His Grace's expense, and also for engravings from several of the largest of these drawings. To Mrs. Lawrence of Studley Royal he is obliged for the portraits of many of the noble trees in the park at Studley, that lady having employed a London artist, H. W. Jukes, Esq., for several months for that purpose; and to the Rev. J. Charnock, for directing the measurements, and supplying interesting information respecting those trees. To the Countess of Bridgewater he is indebted for portraits of the gigantic beeches at Ashridge: and to Lady Grenville, for permission to take drawings, and for numerous specimens of the *A*biétinæ in the magnificent pinetum at Dropmore; and to Her Ladyship's intelligent and most industrious gardener, Mr. Frost, for supplying valuable information respecting their culture and management, and for lending every assistance in his power. Portraits of trees, and many specimens, have also been sent by various other persons in different parts of Great Britain and Ireland, whose names, lest any individual should be by chance omitted, it is not endeavoured here to enumerate.

The author is also indebted, for portraits, specimens, and information, to various amateurs and gardeners on the Continent, as well as to correspondents in North America and Australia; and more especially to M. Alphonse De Candolle of Geneva; to M. André Michaux, M. Vilmorin, M. Loiseleur Deslongchamps, and M. Soulange-Bodin, of Paris; to Baron Jacquin, and M. Charles Rauch, of Vienna; to Professor Reinwardt, Leyden; Professor Kops, Utrecht; M. Otto, Berlin; Messrs. Booth, Hamburg; Professor Schouw and M. Petersen, Copenhagen; Bishop Agardh, Carlstadt, Sweden; Dr. Fischer, Petersburg; M. Fintelman, Moscow; M. Descemet, Odessa; Sr. G. Manetti, Monza, near Milan; the Honourable Keppel Craven, Naples; Dr. Mease, Philadelphia; Col. Carr, of Bartram's Botanic Garden; and John Thompson, Esq., Surveyor General's office, Sydney.

In the literary department the author received the assistance of the Rev. M. J. Berkeley, M.A., F.L.S., for the lists of Fungi inhabiting different species of trees; of J. O. Westwood, Esq., F.L.S., Secretary to the Entomological Society, for descriptions and drawings of the Insects infesting different species; of Wm. Spence, Esq., F.L.S., and of M. Audouin, Member of the Institute of France, and Professor of Entomology, for information respecting the species of Scólytus injurious to the elm; of Mr. John Denson, A.L.S., in drawing up the characters of the Orders and Genera, and generally for what may be considered the botanical department of this Work, from its commencement to the end of the genus *S*àlix. He is, also, indebted to W. Withers, Esq., of Holt, Norfolk, for the loan of his unpublished work on the Robín*ia* Pseud-*A*càcia; to W. Borrer, Esq., F.L.S., for the arrangement into groups of the numerous species of the difficult genus *S*àlix, and for looking over the proof sheets of the article on that genus; to Professor Alphonse De Candolle, for looking over the proof sheets of the article on Salisbùr*ia*, as well as for examining the proofs of the history of trees in France and Switzerland; to M. Vilmorin, for looking over the proof sheets of the history of trees and shrubs in France; to the late M. Fischer, of the Botanic Garden, Göttingen, and to M. Otto, of Berlin, for looking over the proof sheets of the history of trees in Germany; to Professor Don, for arranging and looking over the whole of the generic characters, and some of the proof sheets, of the Coníferæ; and to Mr. Gorrie, for examining the proof sheets of the article on the Larch.

To His Grace the Duke of Bedford the author is indebted for much valuable information on the subject of trees, and more especially respecting the Oak, the Scotch Pine, and the Cedar of Lebanon, communicated either directly by His Grace, or through his forester at Woburn Abbey, Mr. Ireland; as well as for permission (of which he has availed himself) to make whatever use he chose of that magnificent work the *Salictum Woburnense.* To the Duke of Richmond, the Earl of Aberdeen, Macpherson Grant, Esq., and Mr. Grigor, of Forres, he is indebted for important communications respecting the Scotch Pine in Scotland; to the Duke of Portland for various researches respecting the Oak in Nottinghamshire; and to the Earl of Wicklow, Earl Roden, Lord Viscount Ferrard, Sir Robert Bateson, Mr. Mackay, and Mr. Niven, for information respecting the trees and shrubs of Ireland.

The author, in conclusion, has only to request that the readers of this Work will send to him whatever corrections, additions, or suggestions may occur to them on its perusal, or at any future period. It is his intention to publish whatever additional matter he may receive from correspondents, or procure himself, in an Annual Report in the *Gardener's Magazine;* and to include in this report notices of all the trees and shrubs which may, during the year, have been introduced from foreign countries, or originated in this country from intentional hybridisation or accident. This report will also include such improvements as may from time to time be made in arboricultural nomenclature, such as the re-arrangement of the species of a genus, &c.; and, in short, every thing that may be found requisite to keep up the information contained in the *Arboretum et Fruticetum Britannicum,* with the actual progress of knowledge on the subject. The essence of these annual reports will be collected from time to time, and published in pamphlets, as supplements to the *Arboretum;* so that the possessor of this first edition may have it in his power, at any future time, to bring the Work down to the latest date, without being under the necessity of purchasing a new edition.

J. C. L.

Bayswater, May 20. 1838.

DIRECTIONS TO THE BINDER.

THE Work is to be done up in Eight Volumes: the first Four of Letterpress, and the last Four of Plates.

Vol. I. is to contain the Dedication, Preface, Contents, &c., of the eight volumes, and the text as far as p. 494. inclusive. A Table of the Contents of Vol. I. is to be placed immediately before the Introduction; and the first part of this table being systematic, and the second part alphabetical, an index at the end of the volume is unnecessary. The Signatures at the beginning of the volume run thus: — A, [A], *a*, a to d d, * B, C, &c., in the regular series.

Vol. II. commences with p. 495., and ends with p. 1256. There is a Title, with a Table of Contents on the same plan as in Vol. I.

Vol. III. commences with 1257., and ends with p. 2030.; having a Table of Contents, &c., as in Vol. I.

Vol. IV. commences with p. 2031., and contains the remaining part of the text; with a Table of Contents, &c., as in Vol. I., at the beginning, and three Alphabetical Indexes at the end.

Vol. V. commences with Magnòl*ia* grandiflòra, and ends with *A*càcia dealbàta. There is a Title, with a Table of Contents arranged on the same plan as that given in the preceding volumes.

Vol. VI. commences with *A*mýgdalus commùnis, and ends with *O'*rnus europæ'a, full-grown tree. Title, Contents, &c., as in preceding volumes.

Vol. VII. commences with *Catálpa syringæ*fòlia, and ends with Quércus álba. Title, Contents, &c., as before.

Vol. VIII. commences with Quércus macrocárpa, and ends with *J*uníperus excélsa; and has Title, Contents, &c., as before. At the end of this volume there is an Alphabetical Index to the Four Volumes of Plates.

⁂ A List of the Plates, in the order in which they are to be bound up, is given in the Table of Contents, p. cliv. to clxi. in Vol. I.

The *Cancels* given in order to introduce corrections, &c., are the following: —

TEXT.

Vol. I., pages 1 to 15.	Vol. II., pages 495, 496.
21, 22.	921, 922.
27, 28.	1229, 1230.
29, 30.	1255, 1256.
73, 74.	Vol. III., Titlepage.
157, 158.	pages 1257 to 1262.
159, 160.	1273, 1274.
173, 174.	1275, 1276.
175, 176.	1295, 1296.
177, 178.	1987, 1988.
229, 230.	2029, 2030.
493, 494.	Vol. IV., pages 2031, 2032.

PLATES.

Vol. VII. Pterocàrya caucásica, to be substituted for *J*ùglans *f*raxinifòlia.

Certain superfluous Plates given with some copies, and which are to be cancelled, are enumerated at the end of the Supplement, Vol. IV. p. 2608.

ARRANGEMENT OF THE CONTENTS.

Explanatory References - - - - Page xii
List of Contributors - - - - - xv
Epitome of Contents - - - - - [xxiii]
Contents in full - - - - - *xiii
List of Portraits of Trees forming the Plates in the last Four Volumes - - - - - cliv
List of Portraits of Trees given along with the Text in the first Four Volumes - - - - - clxii
List of Landscapes given along with the Text, showing the Effect of particular Species of Trees in Landscape Scenery - clxiv
List of Engravings of Botanical Specimens given along with the Text - - - - - - clxv
List of Engravings of Fungi, Lichens, &c., given along with the Text - - - - - - clxxxi
List of Engravings of Insects given along with the Text - clxxxii
List of Engravings of Diagrams and miscellaneous Subjects given along with the Text - - - - clxxxiii
List of Authorities for scientific Names - - - clxxxiv
List of Books quoted or referred to - cxc

Immediately after the Titlepage of each Volume (except Vol. I.), a Table of the Contents is given, first systematically arranged, and next alphabetically.

A Table of the Contents of Vol. I. will be found from p. ccxxvii. to p. ccxxx.

ARRANGEMENT OF THE ALPHABETICAL INDEXES.

Alphabetical Index of Genera is given at the end of Vol. IV. p. 2655.
Alphabetical Index of miscellaneous Subjects, at the end of Vol. IV. p. 2667.
Alphabetical Index of Persons and Places, at the end of Vol. IV. p. 2672.
Alphabetical Index of the Portraits of Trees given in the last Four Volumes, at the end of Vol. VIII.

EXPLANATORY REFERENCES.

The greater part of the letterpress of this Work consists of the description, history, geography, uses, propagation, culture, &c., of the species and varieties of the trees and shrubs cultivated in the British Islands; and this is always printed in type corresponding in size with that used in this sentence.

The short descriptive notices of species and varieties which it would be desirable to introduce, of such as have been introduced and lost, of such as have not been seen by the author, even though mentioned in British catalogues, and of such as are half-hardy in the climate of London, or supposed to be so, are uniformly printed in a smaller type.

The statistics, or accounts of the dimensions of trees, which we have received from different parts of the British Islands or the Continent, are also in small type, in order to save room.

The portraits of trees which form the last four volumes are sometimes, referred to as in the second volume, and sometimes as in the last volume. These references were made under the idea of binding up all the letterpress in one volume, and all the plates in another, which, now that the Work is finished, is found to be impracticable. The readiest way of finding the portrait of any particular species of tree is, to refer to the Alphabetical Index of Portraits of Trees, given at the end of the eighth volume. The readiest way of finding the description and history of any particular species or variety, and of ascertaining whether or not a figure is given of it, is by referring to the general Alphabetical Index, at the end of the fourth volume.

In various parts of the Work reference will be found to Part IV., and to the *Encyclopædia of Arboriculture*. These two references refer to one and the same work, viz. the *Encyclopædia of Arboriculture*, which it was originally intended to include in the *Arboretum Britannicum*, but which, for the reasons stated in the Preface, will now be published separately in one volume; and in which the subject of trees and their culture will be generalised, and their mode of treatment given *en masse*, whether as seedlings in the nursery, as useful and ornamental plantations, as yielding timber and other useful products, or as ornaments in the lawn and shrubbery.

The engravings of the botanical specimens, whether printed along with the text, or along with the portraits of the trees in the four last volumes, are invariably to one and the same scale of 2 in. to 1 ft. Where any portion of the plant is given of the natural size, it is distinguished by a cross, thus, +. Where dissections are given, *m.* signifies male, *f.* female, and *mag.* magnified.

The portraits of the entire trees and shrubs given along with the text are to different scales, which are always indicated in the descriptions: they are chiefly 1 in. to 12 ft., 1 in. to 24 ft., and 1 in. to 50 ft.

The portraits of the trees in the last four volumes are nearly all from individuals that were growing within ten miles of London, in the years 1834, 1835, 1836, or 1837. These portraits are chiefly of young trees, of ten or twelve years' growth, and are drawn to a scale of 1 in. to 4 ft.: but there are also portraits of full-grown trees, of all the principal kinds of which full-grown specimens are to be found within ten miles of London (taken chiefly from Syon), and these are drawn to a scale of 1 in. to 12 ft.

Of some species of trees good full-grown examples could not be found within ten miles of London; and of these portraits have been taken from trees growing in different parts of Great Britain (particularly from Studley Park and Dropmore) and Ireland, and, in one or two instances, from trees on the Continent.

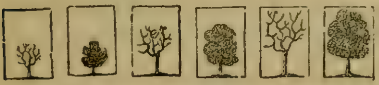
The botanical specimens of the young trees exhibit a branch in flower, the winter's wood when the tree is deciduous, and a branch with ripe fruit, and with the autumnal leaves; besides dissections of the flowers and fruit. These were all drawn on purpose for this Work, and, with a few exceptions, by J. D. C. Sowerby, Esq., F.L.S., &c. See this subject further explained in p. 223.

The specimens of foliage placed at the bottom of the plates of the full-grown trees may be called "artist's foliage," rather than "botanical specimens." They are, for the most part, drawn by the artist who took the portrait of the tree (generally no botanist, and who only knew the artistical differences in the aspect of trees), in order to get a more correct idea of what is called the "touch."

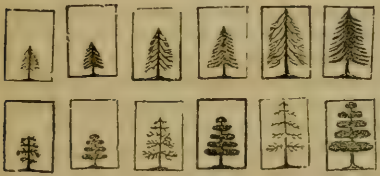
The portraits of all the trees, both young and full grown, were taken chiefly during the months of August, September, and October; but a number were also taken during the winter season, in order to show the skeleton tree without its foliage; several species being as readily known, even to a general observer, when they are naked, as when they are clothed with leaves.

All the engravings of trees and shrubs given in this Work, whether along with the text, or in the last four volumes, have been drawn from nature, on purpose for it, by competent artists, whose names, as well as the names of the places, where the trees are now growing, or grew when their portraits were taken, are given in the List of Trees in the Table of Contents, p. cliv.; and the greater number of the original drawings may still be seen in the possession of the author.

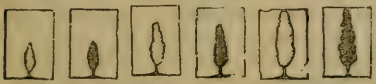
In the descriptive part of this Work, under the titles of the chapters, and sometimes under those of the sections, are given signs, intended to show at a glance the general habit of the trees or shrubs described in that chapter or section. These signs represent large, small, and middle-sized plants, and are as follows; the first sign in each row indicating a deciduous tree or shrub, the next an evergreen, and so on alternately:—



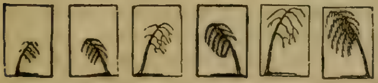
1. Round-headed trees; such as the oak, ash, elm, beech, &c.



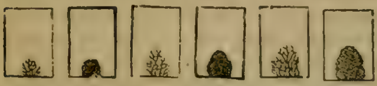
2. & 3. Spiry-topped trees; such as the spruce fir, larch, pine, deciduous cypress, &c.



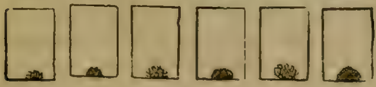
4. Fastigiate trees; such as the Lombardy poplar, cypress, &c.



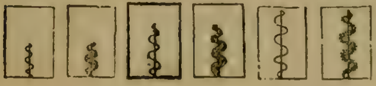
5. Drooping trees; such as the weeping willow, weeping elm, &c.



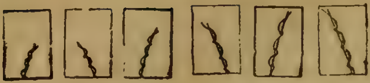
6. Shrubs.



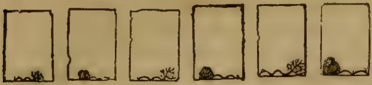
7. Under-shrubs



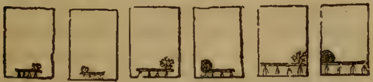
8. Twining shrubs; such as the honeysuckle, menispermum, aristolochia, &c.



9. Climbing shrubs; such as the clematis, ampelopsis, vine, &c.



10. Trailing shrubs, the branches of which lie prostrate on the ground, but do not root into it; such as many species of willow, *C*ístus, &c.



11. Creeping shrubs, or such as send up shoots from their creeping roots; as many species of *S*piræ̀a, &c.

The signs put before each individual species and variety which is described as enduring the open air in the climate of London, and in cultivation in British gardens, are the same as those used in the *Gardener's Magazine*, and in the *Hortus Britannicus*, viz.: —

Deciduous tree.
Evergreen tree.
Deciduous shrub.
Evergreen shrub.
Deciduous under-shrub.
Evergreen under-shrub.
Deciduous twiner.
Evergreen twiner.
Deciduous climber.
Evergreen climber.
Deciduous trailer.
Evergreen trailer.
Deciduous creeper.
Evergreen creeper.

The sign —⌋ (or ⊔, indicating a greater degree of tenderness), added to any of the above signs in the Table of Contents, indicates that the tree or shrub, in the climate of London, requires protection during winter, but is considered likely to live against a conservative wall. Throughout the Work, wherever the dimensions of any tree or shrub are given, and the year when these dimensions were taken is not stated, the autumn of the year 1834, when the Work was commenced, is to be understood.

All the botanic names throughout the Work are accented, and have their origin indicated, as in the *Hortus Britannicus* and the *Gardener's Magazine*. The vowels which are sounded short are marked with an acute accent, thus (´), as A´ceras; and those which are sounded long are marked with a grave accent, thus (`), as A`brus. The origin of each name is indicated thus: where the name has been applied to a plant by the ancients, the first letter is in Italic, as *P*ìnus; where it is commemorative of some individual, the letters additional to the name are in Italic, as Bánks*ia*, Lambert*iàna*, Douglàs*ii*; and where an aboriginal name has been adopted, or where the name is of uncertain derivation, the whole word is in Italic as, *Ailántus*, *Caragàna*, &c. When the name would otherwise be in Italic, as in the case of synonymes, headings to paragraphs, &c., these distinctions are of course reversed, as P*ìnus*, *Bánks*ia, Ailántus. All the other scientific names, generic or specific, are composed from the Greek or Latin, with the exception of a very few, which are taken from places: as Araucària, from the country of the Araucanians; Quércus gramúntia, from the estate of Grammont; *A*`cer monspeliénsis, &c. Further details respecting the particulars entered into in classing, describing, and recording the trees and shrubs included in this Work, will be found in the Introduction, p. 1. to p. 14., and in Part II. Chap. IV. p. 222. to p. 230., which we recommend the reader to peruse with attention.

In the course of the Work, a few exceptions will be found to what is stated in these explanatory pages as general; but they are so very few as to be hardly worth notice; and the reasons for them will either be found given where they occur, or they are considered to be sufficiently obvious.

LIST OF CONTRIBUTORS.

In 1834, before the *Arboretum* was commenced, about three thousand printed lists of trees and shrubs, agreeable to the form shown in Appendix No. I., were put in circulation; and answers to these, or other information relating to trees and shrubs for this *Arboretum*, were received from the following persons: —

A.

Aberdeen, George Earl of, F.R.S., L.S., H.S., &c.
Ackland, Sir T. D., Bart., M.P., F. H.S., &c.
Agardh, D.C. A., Bishop of Carlstadt, F.L.S., &c.
Agardh, jun., Professor of Botany, Lund.
Aglionby, H. A., M.P., F.H.S., &c.
Aiken, H.
Aikin, A., M.D., F.G.S., &c.
Ailsa, A. Marquess of, F.R.S., H. S., &c.
Airlie and Lintrathen, D. O. Earl of.
Aiton, W. T., F.L.S., H.S., &c.
Albett, Josh.
Alexander, J.
Alsop, J.
Amherst, W. P. A. Earl, P.C.
Anderson, A.
Anderson, G., F.H.S.
Anderson, J., F.H.S., &c.
Anderson, W., F.L.S., H.S.
Andrews, M., F.H.S., &c.
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Arundel, H. B. Lord.
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Ashby, W. Ashby.
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Atty, Geo.
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B.

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Backhouse, J., C.M.H.S., Sydney.
Backhouse, Thos., C.M.H.S.
Bagnold, Captain.
Bagot, W. Lord, F.L.S., H.S., &c.
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Baker, A. J. Creswell, F.H.S.
Baker, W. R., F.H.S.
Balfour, W., C.M.H.S.
Bankes, W. J., M.P.
Barnes, Thomas.
Barnet, James.
Barron, W.
Bateman, J., F.L.S., H.S., &c.
Bateson, Sir Robert, M.P.
Bath, Marquess of.
Bauer, Francis, F.R.S., L.S.
Baumann, N., Bollwyller.
Baxter, W., A.L.S., F.H.S., &c.
Baxter, W. H.
Beaton, D.
Bedford, John Duke of, F.L.S., A. S., H.S., &c.
Belfield, F., jun.
Bell, R.
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Bentinck, Lieut.-Col. H.
Bentley, A. C.
Bentley, M. C.
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Bethell, R., M.P., F.H.S., &c.
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Bingham, M. C.
Bishop, Thomas, C.M.H.S., C.H.S., &c.
Black, Dr.
Black, James.
Blackadder, W.
Blaikie, T., C.M.C.H.S.
Blair, Sir D. H.
Blore, G.
Bolton, Lady.
Bond, John, F.H.S., &c.
Booth, John, A.L.S., C.M.H.S., &c.
Borrer, W., F.R.S., L.S., H.S.
Bosch, J. W., C.M.H.S., Stuttgardt.
Bossin, M.
Boulton, M.
Bourgeois, M., Paris.
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Bourne, W. Sturges, M.P., M.A., F. R.S., Z.S., H.S., &c.
Bowens, J., F.H.S.
Bowes, J., F.H.S., &c.
Bowman, J. E., F.L.S.
Braithwaite, Edmund.
Braybroke, R. G. Lord.
Breadalbane, J. C. Marquess of.
Bree, Rev. W. T., A.M., C.M.H.S., &c.
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Bromley, William, F.L.S., H.S., &c.
Brooks, Major J. T.
Brown, George.
Brown, John, F.H.S.
Brown, M., C.M.H.S.
Brown, Richard.
Browne, Hay.
Browne, Henry Augustus.
Bruce, James.
Bruen, J. H.
Buccleugh, W. F. Duke of, K.G., F.R.S., L.S., &c.
Buchan, Daniel.
Buchan, W., F.H.S.
Buchanan, W., F.L.S., H.S., &c.
Buchanan, W. J.
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Bunbury, Lieut.-Gen. Sir H. E., Bart., F.L.S., H.S., &c.
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Byers, R. W., F.L.S., &c.

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Campbell, Lord John.
Campbell, Alexander, A.L.S.
Campbell, J. D.
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Carnarvon, H. J. G. H. Earl of.
Carrick, Countess of.
Carroll, Edward.
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Case, P. J.
Castle, G.
Castles, Robert.
Cathie, Nichol.
Cato, John.
Cawdor, J. F. Earl of, F.R.S., H.S., &c.
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Charlwood, G., F.L.S., H.S. &c.
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Clarke, Fingal.
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Clarke, N.
Clarke, Thomas.
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Collinson, John.
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Coventry, Earl of.
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Cowens, John.
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Cumming, W. C.
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Curzon, Hon. and Rev. Frederick, F.H.S., &c.

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Damer, Hon.——
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Dawson, T.
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Derum, M.
Descemet, M.
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Duffies, Alexander.
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Duncan, J.
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Dunmore, G. Earl of.
Dymock, W. G.
Dymoke, Hon. Champion H.

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Eaton, James
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Euston, Earl.
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Fischer, F. E. L., M.D., F.H.S., &c. St. Petersburg.
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Forrest, Thomas, C.M.H.S.
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Gordon, W.
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Guthrie, Charles.

H.

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Haythorn, Z.
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Henderson, T.
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Hodgson, Rev. John.
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Hooker, Sir W. J., F.L.S., H.S., &c.
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Hosie, R., C.M.H.S.
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Howden, Gen., Lord.
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Hunt, T. L.

Hutchinson, William
Hutton, R., F.H.S., &c.

I.

Ireland, R.
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Irving, T.

J.

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Jardine, Sir William Bart., F.R.S.E., L.S., &c.
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Johnston, R.
Johnstone, Edmund, F.H.S.
Johnstone, Henry, M.P.
Jones, B.
Judd, D., F.H.S.
Jukes, H. W.

K.

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King, W. Lord, F.H.S., &c.
Klouweitz, Hans.
Knight, T. A., F.R.S., L.S., P.H.S.
Knight, J., F.H.S., &c.
Knipe, J. B.
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Kops, Professor, Utrecht.

L.

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Lainell, J.
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Lamb, Sir Charles M., F.H.S., &c.
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Langelier, P., C.M.H.S., Jersey.
Lansdowne, Henry Marquess of, F.R.S., L.S., H.S., &c.
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Lauder, Sir Thomas Dick, Bart.
Law, J.
Lawrence, Charles, F.H.S., &c.
Lawson, Charles.
Lawson, John.
Lawson, P. and Son.
Le Blanc, Thomas.
Le Candele, J., Humbeque Nursery, near Antwerp.
Lees, E., F.L.S., &c.
Lemon, Sir C., Bart., M.P., F.H.S.
Lenné, M., Potsdam.
Le Roy, M. Angers.
Lewin, F. E.
Lewis, G. R.
Lichfield and Coventry, Hon. H. Ryder, Bishop of.
Lindsay, T. M.
Lines, J.
Llewelyn, J. D., F.H.S., &c.
Loch, J., M.P., F.G.S., &c.
Loddiges, Conrad, and Sons.
London, C. J. Bishop of, D.D., &c.
Long, H. L.
Longman, T. N., F.H.S., &c.
Lorimer, Robt.
Lothian, J. W. R. Kerr Marquess of.
Loudon, James, Warsaw.
Loudon, James, Ham House.
Low, H., F.H.S.
Lowndes, H.
Lowndes, Richard.
Lucombe and Pince, Messrs.
Luke, Richard.
Lye, W. L.
Lyell, Charles, jun., F.R.S., L.S., G.S., &c.
Lyon, Geo.
Lyttleton, W. H. Lord.

M.

M'Arthur, P., F.H.S.
Mackay, F.
Mackay, J. T., A.L.S., M.R.I.A., &c.
Mackey, Constantine.
Mackenzie, Sir Jas. Stuart, Bart., M.P., F.H.S., &c.
Mackenzie, P., Philadelphia.
Mackie, J.
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M'Nab, T., C.M.H.S., Dollar.
M'Nab, W., A.L.S., Edinburgh.
Maddison, J., Ghent.
Main, James, A.L.S., &c.
Major, J.
Malcolm, William, F.L.S., H.S., &c.
Mallet, R., A.M., &c.
Malpas, B.
Manetti, Giuseppe, C.M.H.S., Monza.
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Mangles, R., F.H.S.

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Marnock, R.
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Martin, M. J.
Martius, Dr., Munich.
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Mathews, Maria Ruthven.
Mathies, J.
Matthews, A., A.L.S., Lima.
Maund, B., F.L.S., &c.
Maunder, W.
Maxwell, J., M.P., F.R.S., H.S., &c.
Maxwell, Lady Heron.
May, E.
May, G.
M‘Donald, J., C.M.H.S.
M‘Duff, J.
M‘Diarmaid, William.
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Mearns, J., F.A.S.
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Melville, Lord Viscount, K.T., P.C., &c.
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PART III.

THE DESCRIPTION, GEOGRAPHY, HISTORY, PROPERTIES AND USES, SOIL AND SITUATION, PROPAGATION AND CULTURE, ACCIDENTS, DISEASES, INSECTS, AND STATISTICS, OF THE HARDY TREES AND SHRUBS OF BRITAIN, INDIGENOUS AND FOREIGN; WITH NOTICES OF THE HALF-HARDY SPECIES.

The Synonymes are printed in Italics. The letters *pl.* refer to the portraits of entire trees; and the letters *fig.* and *f.* to the botanical figures incorporated in the text.

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Vìtis nìgra Fuchs.
Vitálba Dod.
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11. grácilis ♣ China - - 283
The slender-*growing* Magnolia.
M. Kòbus *Kæmpf.*
M. glaúca Thunb.
M. tomentòsa Thunb. in Lin. Soc.
Sidi Kobusi, Jap.

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The Tulip Tree.
Tulipier, Fr.
Bieberbaum, Ger.

1. Tulipífera *L.* ‡ N. Am. pl. 12, 13. 284
The Tulip-bearing Liriodendron, *or Tulip Tree.*
The Poplar, *White Wood*, *Canoe Wood*, *the Tulip Tree*, Amer.
Virginian Poplar, *Tulip-bearing Lily Tree*, *Saddle Tree*, Eng.
Tulipier de Virginie, Fr.
Virginischer Tulipcerbaum, Ger.

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2 obtusíloba *Michx.* ‡
L. T. integrifòlia Hort.
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4 flàva *Hort.* ‡

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The Asimina.
Annòna *L.*
Orchidocárpum Mx.
Porcèlia Pers.
Custard Apple.
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1. parviflòra *Dun.* ⚘ N. America - 293
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Porcèlia parviflòra Pers.
Orchidocárpum parviflòrum Mx.

2. tríloba *Dun.* ⚘ N. America f. 39. 293
The three-lobed-*calyxed* Asimina.
Annòna *tríloba* L.
Porcèlia tríloba Pers.
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The Papaw, Amer.
Asiminier de Virginie, Fr.

3. pygmæ'a *Dun.* ⚘ N. America f. 40. 294
The pygmy Asimina.
Annòna *pygmæ'a*, Bartr.
Orchidocárpum pygmæ'um Mx.
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The large-flowered Asimina.
Annòna *grandiflòra* Bartr.
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1. coccínea *Michx.* ⚘ ⌋ N. Amer. f. 41. 295
The scarlet-*flowered* Schizandra.
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The Moonseed.
Ménisperme, Fr.
Mondsaame, Ger.

1. canadénse *L.* ⚘ N. Amer. f. 42. 296
The Canadian Moonseed.
M. canadénse var. α Lam.
M. angulàtum Mœnch.
Variety - - 296
2 lobàtum *Dec.* ⚘
M. virgìnicum L.

2. daùricum *Dec.* ⚘ Daùria f. 43. 297
The Daurian Moonseed.
Trìlophus Ampelisàgria Fisch.
M. canadénse var. β Lam.

3. smilácinum *Dec.* ⚘ - fig. 44. 297
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Menispermum L.
Wendlándia Willd.
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Piperidge Bush.
E'pine vinette, Fr.
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1. sibírica *Pall.* ⚘ Siberia f. 46. 301
The Siberian Berberry.
B. *altàica* Pall.

2. vulgàris *L.* ⚘ England - 301
The common Berberry.
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3 álba ⚘
4 violàcea ⚘
5 purpùrea ⚘
6 nìgra ⚘
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8 aspérma ⚘
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B. *vulgàris* Michx.
B. *v. canadénsis* Mart. Mill.

4. emarginàta *Willd.* ⚘ Siberia f. 49. 303
The emarginate-*petaled* Berberry.
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5. ibérica *Stev.* ⚘ Iberia - f. 50. 304
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B. *vulgàris? v. ibérica* Dec. Syst.
B. *sinénsis* Wal.

6. sinénsis *Desf.* ⚘ China - 304
The Chinese Berberry.
B. *vulgàris* Thunb.

7. crética *L.* ⚘ Candia - 304
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B. *crética buxifòlia* Tourn.
Variety - - 305
2 serratifòlia *Poir.*

8. cratæ'gina *Dec.* ⚘ Asia Minor 305
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9. dúlcis *Swt.* ⚘ S. America f. 51. 305
The sweet-*fruited* Berberry.

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10. heterophýlla *Juss.* ♣ S. Am. f. 52. 305
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B. *ilicifòlia* Forst.
B. *cuspidàta* Smith.

11. empetrifòlia *Lam.* ♣ Chili - 306
The Empetrum-leaved Berberry.

12. floribúnda *Wall.* ♣ Nepal - 306
The many-flowered Berberry.
B. *affi'nis.*
B. *ceratophýlla.*

13. asiática *Rox.* ♣ Nepal - 306
The Asiatic Berberry.
B. *tinctòria* Lech.
The Raisin Berberry.

14. dealbàta *Lindl.* ♣ Mexico f. 35. 307
The whitened-*leaved* Berberry.
B. *gláuca* Hort.

15. aristàta *Dec.* ♣ Nepal fig. 54. 307
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B. Chìtria *Buch.*
B. *angustifòlia* Roxb.
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Bérberis *of Authors.*
Odostèmon Raf.

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The crowded-*racemed* Mahonia.
Bérberis *pinnàta* Lag.
B. *fasciculàris* Pen. Cyc.

2. *A*quifòlium *Nutt.* ♣ N. Am. f. 57. 309
The Holly-leaved Mahonia.
B. *Aquifòlium* Pursh.
Variety - - 309
2 nutkàna *Dec.*

3. nervòsa *Nutt.* ♣ N. Amer. f. 58. 310
The nerved-*leaved* Mahonia.
Bérberis *nervòsa* Pursh.
Mahònia glumàcea Dec.
Bérberis *glumàcea* Pen. Cyc.

4. rèpens *G. Don.* ⚘ N. Amer. f. 59. 311
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Bérberis *Aquifòlium* Lindl.
B. *rèpens* Pen. Cyc.

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The False-Cytisus Cress-Rocket.
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Faux-Cytise.
Strauchartige Velle, Ger.

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Capernstrauch, Ger.
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1. spinòsa *L.* ✱ ⌟ Levant - fig. 63. 314
The spined, *or common*, Caper Bush.

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C. ægýpta *Lam.*, nepalénsis *Dec.*, nummulària *Dec.*, quiniflòra *Dec.*, umbellàta *R. Br.*, canéscens *Banks*, heteracantha *Dec.*, leucophýlla *Dec.*, Volkamèriæ Dec., citrifòlia *Lam.*, cluyti*æfòlia* Burch., oleöìdes *Burch.*, coriàcea *Burch.*, albitrúnca *Burch.*, punctàta *Burch.*, racemòsa *Dec.*, salìgna *Vahl.*

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Gum Cistus.
Ciste, Fr.
Cisten Rose, Ger.

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1. purpùreus *Lam.* ⚘ Levant. f. 64. 318
The purple-*flowered* Cistus.
C. *créticus* Hort. Kew.

2. heterophýllus *Desf.* ⚘ Alg. f. 65. 318
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The Cistus of Algiers.

3. parviflòrus *Lam.* ⚘ Crete - 319
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4. complicàtus *Lam.* ⚘ Spain - 319
The complicated Cistus.

5. villòsus *Lam.* ⚘ S. Europe - 319
The villous Cistus.
C. *salvifòlius* Hort.
C. *undulàtus* Mœnch.
C. *más màjor, &c.*, Duh.
C. *créticus* Hort.
The shrubby Cistus, Mart. Mill.
Variety - - 319
2 rotundifòlius ⚘
C. *rotundifòlius* Swt.
C. *villòsus β viréscens* Dec.

6. créticus *L.* ⚘ Levant fig. 66. 319
The Cretan Cistus.
Lèdon Diosc.

7. incànus *L.* ⚘ S. Europe fig. 67. 320
The hoary Cistus.
C. *álbidus* Hort.
C. *cymòsus* Dec.
Ciste cotonneux, Fr.
Bestaubte Cisten Rose, Ger.
Variety ⚘ - 321
2 canéscens ⚘
C. *canéscens* Swt.
C. *más* Clus.
C. *incànus var. β* Dec.

8. undulàtus *Dec.* ⚘ - - 321
The waved-*leaved* Cistus.
C. *créticus* Swt., afterwards C. *undulàtus* Swt.
? C. *crispus var.* Don.

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9. críspus *L.* ⊓ France - 321
The curled-*leaved* Cistus.

10. álbidus *L.* ⊓ France - 321
The white-*leaved* Cistus.

11. candidíssimus *Dun.* ⊓ Canaries 322
The whitest-*leaved* Cistus.

12. vaginàtus *Ait.* ⊓ Teneriffe - 322
The sheathed-*petioled* Cistus.
C. *symphytifòlius* Lam.
Ciste à Feuilles de Consoude, Fr.
Scheidenartige Cisten Rose, Ger.

13. seríceus *Vahl.* ⊓ Spain - 322
The silky-*leaved* Cistus.

14. hýbridus *Vahl.* ⊓ Spain - 322
The hybrid Cistus.

15. cymòsus *Dun.* ⊓ Spain - 322
The cymose-*flowered* Cistus.
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16. salviæfòlius *L.* ⊓ S. Europe 323
The Sage-leaved Cistus.
C. *fœ'mina* Clus.
Ciste à Feuilles de Sauge, Fr.
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Varieties ⊓ - 323
2 erectiúsculus *Dec.* ⊓
3 ochroleùcus *Dec.* ⊓

17. obtusifòlius *Swt.* ⊓ Spain - 323
The obtuse-leaved Cistus.

18. Cupaniànus Presl. ⊓ Sicily - 324
Cupani's Cistus.
Variety ⊓ - - 324
2 acutifòlius ⊓
The acute-leaved Cupani's Cistus.
C. *acutifòlius* Swt.
C. *salviæfòlius β humifùsus* Dec.

19. corbariénsis *Pourr.* ⊓ Spain 324
The Corbières Cistus.
C. *salviæfòlius β* Dec.
C. *populifòlius mìnor*, in some nurseries.
C. *hýbridus* Pourr., not of Vahl.

20. florentìnus *Lam.* ⊓ Spain - 324
The Florentine Cistus.

21. monspeliénsis *L.* ■ S. Europe 324
The Montpelier Cistus.

22. platysépalus *Swt.* ■ Crete - 325
The broad-sepaled Cistus.

23. Lèdon *Lam.* ⊓ France - 325
The Ledon Cistus.
C. *undulàtus* Link.?
C. *ladaníferus monspeliénsium* Bauh.
Ciste de Montpelier qui donne du ladanum, Ciste de Ledon, Fr.

24. hirsùtus *Lam.* ■ Spain - 325
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25. Sideritis *Presl.* ∽ Sicily - 325
The Ironwort-*like* Cistus.

26. láxus *Ait.* ⊓ Spain - - 325
The loose-*flowering* Cistus.
C. *capénsis* L.
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27. oblongifòlius *Swt.* ■ Spain - 326
The oblong-leaved Cistus.

28. asperifòlius *Swt.* ⊓ - 326
The rough-leaved Cistus.

29. psilosépalus *Swt.* ⊓ - 326
The glabrous-sepaled Cistus.

30. longifòlius *Lam.* ⊓ S. Europe 326
The long-leaved Cistus.
C. *nigricans* Pourr.
C. *populifolius var. longifolius* Dumont.

31. populifòlius *L.* ■ Spain - 326
The Poplar-leaved Cistus.
Variety ⊓ - 326
2 mìnor *Dec.* ⊓
Lèdon *latifòlium*, ii., Clus.
C. *populifòlius* Cav.

32. latifòlius *Swt.* ⊓ ⌋ Barbary - 327
The broad-leaved Cistus.
C. *populifòlius var. màjor* Dec.

33. laurifòlius *Lin.* ■ Spain - 327
The Laurel-leaved Cistus.

34. cýprius *Lam.* ■ Greece - 327
The *Gum* Cistus.
C. *ladaníferus* Bot. Mag.
C. *stenophýllus* Link.
C. *salicifòlius* of some.

35. ladaníferus *L.* ■ Spain - 328
The Ladanum-bearing *Gum* Cistus.
Varieties ■ - - 328
1 albiflòrus *Dec.* ■
2 maculàtus *Dec.* ■
3 plenifòlius *Dec.* ■

36. Clùsii Dunal. ⊓ Spain - 328
Clusius's Cistus.
C. *Libanòtis β* Lam.
C. *undulàtus* Link.
Lèdon, vii., Clus.

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THE HELIANTHEMUM, *or Sun Rose.*
Cisti sp. L.
Helianthème Sonnen Gurtel, Ger.

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1. *Libanòtis Willd.* ⊓ ⌋ Spain 329
The Rosemary-*leaved* Helianthemum.
Cistus Libanòtis L.
H. rosmarinifòlium Lag.
Lèdon, viii., Clus.
Ciste à Feuilles de Rosmarin, Fr.

2. umbellàtum *Mill.* ⊓ ⌋ S. Eur. 329
The umbellate-*flowered* Helianthemum.
Cìstus umbellàtum. L.
Cìstus Libanòtis of some.
Varieties ⊓ ⌋ 330
2 eréctum *Dec.* ⊓ ⌋
3 subdecúmbens *Dec.* ⊓ ⌋

3. ocymöìdes *Pers.* ⊓ ⌋ Spain 330
The Basil-like Helianthemum.
Cìstus ocymöìdes Lam.
Cìstus sampsucifòlius Cav.

4. alyssöìdes *Vent.* ⊓ ⌋ Spain 330
The Alyssum-like Helianthemum.
Cìstus alyssöìdes α Lam.

5. rugòsum *Dun.* ⊓ ⌋ Portugal 330
The wrinkled-*leaved* Helianthemum.

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6. micropӯllum *Swt.* ħ France 330
The small-leaved Helianthemum.
H. rugòsum β microphýllum Dec. Prod.
H. alyssöìdes β microphýllum Dec Fl. Fr.

7. scabròsum *Pers.* ħ Port. f. 68. 331
The rough Helianthemum.
Cístus scabròsus Ait.

8. algarvénse *Dun.* ħ ⌋ Portugal 331
The Algarve Helianthemum.
Cístus algarvénsis Bot. Mag.

9. formòsum *Dun.* ħ ⌋ Portug. 331
The beautiful Helianthemum.
Cístus formòsus Bot. Mag.

10. *a*triplicifòlium *Willd.* ħ ⌋ Spain 332
The Orache-leaved Helianthemum.
Cístus atriplicifòlius Lam.

11. lasiánthum *Pers.* ħ ⌋ Spain 332
The hairy-flowered Helianthemum.
Cístus lasiánthus Lam.

12. involucràtum *Pers.* ħ ⌋ Spain 332
The involucrated-*flowered* Helianthemum.
Cístus involucràtus Lam.

13. cheiranthöìdes *Pers.* ħ ⌋ Port. 332
The Wallflower-like Helianthemum.
Cístus cheiranthöìdes Lam.
Cístus elongàtus Vahl.
Cístus h*alimifòlius*, ii., Clus.

14. cándidum *Swt.* ħ Spain 332
The white-*leaved* Helianthemum.

15. *h*alimifòlium *Willd.* ħ ⌋ Spain 333
The Sea-Purslane-leaved Helianthemum.
Cístus h*alimifòlius* L.
Cístus fòlio H*álimi*, i., Clus.

§ ii. *Lecheöìdes Dec.* ħ ħ ⊔ ħ ⌋ 333
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The corymbose-*flowered* Helianthemum.

17. glomeràtum *Lag.* ħ ⌋ Mex. f. 69. 333
The glomerate-*flowered* Helianthemum.
Cístus glomeràtus Lag. Gen.

18. brasiliénse *Pers.* ħ ⌋ Brazil f. 70. 334
The Brazilian Helianthemum.
Cístus brasiliénsis Lam.
Cístus alternifòlius Vahl.

Other Species belonging to this Division of Lecheöìdes. - - 334
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§ iii. Tuberària *Dec.* ħ 334
19. lignòsum *Swt.* ħ S. Europe f. 71. 334
The woody Helianthemum.

§ iv. *Eriocárpum* Dec. ħ ħ ⌋ 335
20. Líppi*i* Pers. ħ ⌋ Egypt 335
Lippi's Helianthemum.
Cístus Líppii L.

21. sessiliflòrum *Pers.* ħ ⌋ N. Africa 335
The sessile-flowered Helianthemum.
Cístus sessiliflòrus Desf.

22. kahíricum *Del.* ħ ⌋ Egypt 335
The Cairo Helianthemum.
Cístus stipulàtus β Forsk.

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23. *Fumàna* Mill. ħ France f. 72. 336
The Fumana Helianthemum.
Cístus Fumàna *L.*
Cístus hùmilis, seu Chamæcistus Erìcæ fòlio lùteus eréctior, Bauh.
Varieties ħ - - - 336
2 màjor *Dec.* ħ
2 mìnor *Dec.* ħ
3 virgàta *Dec.* ħ

24. procúmbens *Dun.* ȝ ⌋ S. Europe 336
The procumbent *Heath-like* Helianthemum.
Cístus hùmilis, sive Chamæcistus Erìcæ fòlio humìlior, Magn. Bot.

25. arábicum *Pers.* ȝ ⌋ Arabia 336
The Arabian Helianthemum.
Cístus arábicus E.
Cístus ferrugíneus Lam.
Cístus Sàvi Bertol.
H. viscídulum Stev.

26. læ′vipes *Willd.* ħ ⌋ Spain - 336
The smooth-peduncled Helianthemum.
Cístus læ′vipes L.

27. læ̀ve *Pers.* ħ ⌋ Spain - - 337
The smooth Helianthemum.
Cístus læ̀vis Cav.

28. víride *Tenore* ħ ⌋ Sicily - 337
The green-*leaved* Helianthemum.

29. *j*unipérinum *Lag.* ħ ⌋ S. Europe 337
The Juniper-like Helianthemum.
Cístus læ′vipes Durand.
Cístus mauritánicus Thib.

30. Barrelièri *Tenore.* ħ ⌋ Italy - 337
The Barrelier's Helianthemum.

31. *t*hymifòlium *Pers.* ȝ ⌋ Spain 337
The Thyme-leaved Helianthemum.
Cístus t*hymifòlius* L.
H. *glutinòsum β* Dec.

32. glutinòsum *Pers.* ħ ⌋ Spain 337
The clammy Helianthemum.
Cístus glutinòsus L.

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The soft-*leaved* Helianthemum.
Cístus móllis Cav.

34. origanifòlium *Pers.* ȝ ⌋ Spain 338
The Marjoram-leaved Helianthemum.
Cístus origanifòlius Lam.

35. dichótomum *Dunal.* ȝ ⌋ Spain 338
The dichotomous-*branched* Helianthemum.
Cístus dichótomus Cav.

36. œlándicum *Dec.* ȝ Europe - 338
The Œland Helianthemum.
Cístus œlándicus L.
Chamæcístus, ii., Clus.

37. pulchéllum *Swt.* ȝ Germany 339
The neat Helianthemum.
H. alpéstre Spreng.

38. alpéstre *Dunal.* ȝ S. Europe 339
The Alpine Helianthemum.
Cístus alpéstris Crantz.
Cístus œlándicus Jacq.
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elongàtum *Dec.* ȝ
canéscens *Dec.* ȝ

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39. penicillàtum *Thib.* ♄ France - 339
The pencilled Helianthemum.
Cístus echioìdes Lam.
Cístus ánglicus L.

40. obovàtum *Dunal.* ♄ ⌋ Spain - 339
The obovate-*leaved* Helianthemum.
Cístus itálicus L.

41. itálicum *Pers.* ♄ ⌋ Italy - 339
The Italian Helianthemum.
Cístus itálicus L.
Cístus marifòlius Bieb.
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candidíssimum *Dec.* ♄ ⌋
álbidum *Dec.* ♄ ⌋

42. vineàle *Pers.* ♄ Germany - 340
The Vineyard Helianthemum.
Cístus vineàlis Willd.

43. cànum *Dunal.* ♄ ⌋ S. Europe 340
The hoary Helianthemum
Cístus cànus L.
Chamæcistus, iii., Clus.

44. marifòlium *Dec.* ♄ France - 340
The Marum-leaved Helianthemum.
Cístus marifòlius L.

45. crassifòlium *Pers.* ħ ⌋ Spain - 340
The thick-leaved Helianthemum.
Cístus glaucus Desf.
H. Séxte Lag.

46. paniculàtum *Dunal.* ħ ⌋ Spain 340
The panicled-*flowered* Helianthemum.
Cístus marifòlius Thib.
Cístus nummulàrius ver. Lag.
H. sp. nòva Schouw.

§ vii. *Euheliánthemum* Dec. ✱ ♄ ħ ⌋ 340

47. lavandulæfòlium *Dec.* ħ France 341
The Lavender-leaved Helianthemum.
Cístus lavandulæfòlius Lat.
Varieties ħ - 341
syrìacum *Dec.* ħ
Cístus syriacus Jacq.
Thibaúdi Pers. ħ
Cístus racemòsus Cav.

48. stœchadifòlium *Pers.* ħ Spain 341
The French-Lavender-leaved Helianthemum.
Cístus stœchadifòlius Brot.

49. cròceum *Pers.* ♄ ⌋ Spain - 341
The Saffron-coloured-*flowered* Helianthemum.
Cístus cròceus Desf.
Varieties - - 341

50. Andersòni Swt. ħ Hybrid - 342
Anderson's Helianthemum.

51. nudicaúle *Dunal.* ♄ ⌋ Spain - 342
The naked-stemmed Helianthemum.

52. glaúcum *Pres.* ħ ⌋ Spain - 342
The glaucous Helianthemum.
Cístus glaúcus Cav.
Varieties ħ - 342
acutiúsculum *Dec.* ħ
obtusiúsculum *Dec.* ħ

53. tomentòsum *Dunal.* ♄ France 342
The tomentose Helianthemum.

54. barbàtum *Pers.* ħ S. Europe 343
The bearded-*racemed* Helianthemum.
Cístus barbàtus Lam.

55. leptophýllum *Dunal.* ♄ ⌋ Spain 343
The slender-leaved Helianthemum.
Cístus angustifòlius Lag.
Cístus stœchadifòlius Hort.

Page
56. acuminàtum *Pers.* ħ France - 343
The acuminated Helianthemum.
Cístus serpyllifòlius Balb.
Cístus acuminàtus Viv.

57. serpyllifòlium *Mill.* ♄ S. Europe 343
The Wild-Thyme-leaved Helianthemum.
Cístus serpyllifòlius L.

58. vulgàre *Gœrt.* ♄ Britain - 343
The common Helianthemum.
Cístus Heliánthemum L.
Varieties - - 344
Double-flowered.
Lee's new double yellow.
Tomentose pubescent branches, *Dec.*
Branches glabrous at the base, *Dec.*

59. surrejànum *Mill.* ♄ England 344
The Surrey Helianthemum.
Cístus surrejànus L.

60. ovàtum *Dunal.* ♄ Geneva - 344
The ovate-*leaved* Helianthemum.
Cístus ovàtus Viv.

61. grandiflòrum *Dec.* ♄ Pyrenees 344
The large-flowered Helianthemum.
Cístus grandiflòrus Scop.

62. obscùrum *Pers.* ♄ S. Europe - 344
The obscure Helianthemum.
H. obscùrum a Dec.

63. taúricum *Fisch.* ♄ Tauria - 345
The Taurian Helianthemum.

64. lùcidum *Horn.* ♄ - 345
The shining-*leaved* Helianthemum.

65. nummulàrium *Mill.* ♄ France 345
The Moneywort-*leaved* Helianthemum.
Cístus nummulàrius α L.
H. obscùrum β nummulàrium Dec.
H. angustifòlium Hort.

66. angustifòlium *Pers.* ♄ Cyprus 345
The narrow-leaved Helianthemum.
Cístus angustifòlius Jacq.
? *H. nummulàrium* Dec.

67. hírtum *Pers.* ♄ ⌋ Spain - 345
The hairy Helianthemum.
Cístus hírtus L.
Varieties ♄ - - 346
bæ'ticum *Dec.* ♄
aúreum *Dec.* ♄
teretifòlium *Dec.* ♄

68. Lagáscæ Dunal. ♄ ⌋ Spain 346
La Gasca's Helianthemum.
H. hírtum var. Lag.

69. violàceum *Pers.* ♄ ⌋ Spain - 346
The Violet-coloured-*calyxed* Helianthemum.
Cístus violàceus Cav.

70. racemòsum *Dunal.* ħ ⌋ Spain - 346
The racemose-*flowered* Helianthemum.
Cístus racemòsus L.

71. farinòsum *Scot.* ħ ⌋ Spain - 346
The mealy-*leaved* Helianthemum.
H. racemòsum β farinòsum Dec.

72. stríctum *Pers.* ħ ⌋ Spain - 346
The straight-*branched* Helianthemum.
Cístus strictus Cav.

Page
73. pilòsum *Pers.* ƺ France - 346
The pilose Helianthemum.
Cistus pilòsus L.
Chamæcistus, iv., Clus.
Varieties ƺ - - 346
With linear leaves, hoary, *Dec.* ƺ
With linear leaves, oblong and shining, *Dec.* ƺ

74. lineàre *Pers.* ƺ ⌟ Spain - 347
The linear-*leaved* Helianthemum.
Cistus lineàris Cav.
Cistus pilòsus Dec.

75. virgàtum *Pers.* ꝝ Barbary - 347
The twiggy Helianthemum.
Varieties ꝝ - - 347
albiflòrum *Dec.* ꝝ
ròseum *Dec.* ꝝ

76. apennìnum *Dec.* ƺ S. Europe 347
The Apennine Helianthemum.
Cistus apennìnus L.
Cistus hìspidus β Lam.
Varieties ƺ - - 347
Leaves broad and flattish, *Dec.* ƺ
Leaves linear and narrow, *Dec.* ƺ

77. híspidum *Dunal.* ꝝ France - 347
The hispid-*herbaged* Helianthemum.
Cistus hìspidus Lam.
Cistus pilosus β Gowan.
H. majoranæ*fòlium* β Dec.

78. pulverulèntum *Dec.* ƺ France 348
The powdered-*leaved* Helianthemum.
Cistus pulverulèntus Pour.
Cistus polifòlius Lam.

79. macránthum *Swt.* ƺ - - 348
The large-flowered Helianthemum.
Variety ƺ - - 348
2 múltiplex *Swt.* ƺ

80. rhodánthum *Dunal.* ƺ ⌟ Spain 348
The red-flowered Helianthemum.
Cistus ròseus Jacq.
Cistus angustifòlius, formerly in the Royal Botanic Garden, Paris.
Cistus pilulìferus Thib.
Varieties ƺ - - 348
oblongifòlium *Dec.* ƺ
subhirsùtum *Dec.* ƺ
cárneum *Dec.* ƺ

81. canéscens *Swt.* ƺ ⌟ Spain - 349
The canescent-*leaved* Helianthemum.

82. confùsum *Swt.* ƺ France 349
The confused Helianthemum.
H. *poliifòlium* Dec.

83. lanceolàtum *Swt.* ƺ Hybrid 349
The lanceolate-*leaved* Helianthemum.

84. *p*oliifòlium *Pers.* ƺ England 349
The Polium-leaved Helianthemum.
Cistus polifòlius L.

85. mutábile *Pers.* ƺ ⌟ Spain - 350
The changeable-*coloured-flowered* Helianthemum.
Cistus mutábilis Jacq.
Varieties ƺ - - 350
With white flowers. ƺ
With smaller flowers of a rose red. ƺ
With double rose-coloured flowers. ƺ

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86. variegàtum *Swt.* ƺ Hybrid 350
The variegated Helianthemum.

87. versícolor *Swt.* ꝝ S. Europe 350
The various-coloured Helianthemum.

88. sulphùreum *Willd.* ƺ ⌟ Spain 351
The sulphur-*colour-flowered* Helianthemum.

89. stramíneum *Swt.* ƺ Hybrid 351
The straw-*colour-flowered* Helianthemum.
Variety ƺ - - 351
2 múltiplex *Swt.* ƺ

90. diversifòlium *Swt.* ꝝ - 351
The various-leaved Helianthemum.
Variety ꝝ - - 351
2 múltiplex ꝝ

91. eriosépalon *Swt.* ƺ S. Europe 351
The woolly-sepaled Helianthemum.

92. ròseum *Dec.* ƺ S. Europe 352
The Rose-*colour-flowered* Helianthemum.
Cistus ròseus All.
Variety ƺ - - 352
2 múltiplex *Swt.* ƺ

93. fœ'tidum *Pers.* ƺ Hybrid - 352
The fetid Helianthemum.
Cistus fœ'tidus Jacq.

94. *h*yssopifòlium *Tenore.* ƺ ⌟ Italy 352
The Hyssop-leaved Helianthemum.
Varieties ƺ - - 352
1 crocàtum *Swt.* ƺ
2 cùpreum *Swt.* ƺ
3 múltiplex *Swt.* ƺ fig. 75.

95. cùpreum *Swt.* ƺ Hybrid - 353
The copper-*colour-flowered* Helianthemum.

96. venústum *Swt.* ƺ - - 353
The handsome Helianthemum.

97. Mílleri Swt. ƺ Hybrid - 353
Miller's Helianthemum.

98. *majoranæ*fòlium *Dec.* ꝝ S. Europe 353
The Marjoram-leaved Helianthemum.
H. m. *var. a Dec.*
Cistus marjoranæ*fòlius* Gouan.

99. hirsùtum *Dec.* ƺ Pyrenees - 353
The hairy Helianthemum.
Cistus hirsùtus Lapeyr., not of Lam.

III. HUDSO'N*IA* L. ꝝ ⌟ 317. 354
THE HUDSONIA.

1. *e*ricöìdes *L.* ꝝ ⌟ N. Am. fig. 76. 354
The Heath-like Hudsonia.

2. [? *e.*] Nuttálli Swt. ꝝ ⌟ N. America 354
Nuttall's Hudsonia.
H. *ericöìdes* Nutt.

3. [? *e.*] tomentòsa *Nutt.* ꝝ ⌟ N. America 354
The tomentose-*leaved* Helianthemum.

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Polygalàceæ. ✱ ⊔ ♄ - 355

1. *Polýgala* Chamæbúxus *L.* ♄ Europe fig. 77. 356
The Dwarf Box Polygala, *or Box-leaved Milkwort.*

Half-hardy Polygalas. ✱ ⊔ - 356
P. oppositifòlia *L.* ✱ ⊔
màjor ✱ (P.) *grandiflòra* of some fig. 78.
P. latifòlia *Ker.* ✱ ⊔
P. myrtifòlia. ✱ ⊔
P. grandiflòra *Lodd.* ✱ ⊔
P. bracteolàta *L.* ✱ ⊔
P. speciòsa *Bot. Mag.* ✱ ⊔
P. attenuàta *Lodd.* ✱ ⊔

Pittosporàceæ. ✱ ⊔ ₤ ⊔ 356

I. BILLARDIE'RA Sm. ₤ ⊔ - 356
The Billardiera, *or Apple Berry.*

1. longiflòra *Labill.* ₤ ⊔ V. D. L. f. 79. 357
The long-flowered Billardiera.

2. ovàlis *Lindl.* ₤ ⊔ V. Diemen's L. 357
The oval-*leaved* Billardiera.

3. mutábilis *H. K.* ₤ ⊔ N. S. W. f. 80. 357
The changeable-*coloured-flowered* Billardiera.

II. SO'LLYA Lindl. ₤ ⊔ - 357
The Sollya.
Billardièra, in one species.

1. heterophýlla *Lindl.* ₤ ⊔ N. H. f. 81. 357
The various-leaved Sollya.

2. angustifòlia *Lindl.* ₤ ⊔ V. D. L. 358
The narrow-leaved Sollya.
Billardièra fusifórmis Lab.

III. PITTO'SPORUM *Banks.* ₤ ⊔ 538
The Pittosporum.

1. *Tobìra* Ait. ✱ ⊔ China fig. 82. 358
The Tobira Pittosporum.
Euónymus Tobìra *Thunb.*
P. chinénsis Donn.
Tobira Japane, Fr.
Chinesischer Klebsaame, Ger.

2. undulàtum ✱ ⊔ China fig. 83. 358
The undulated-*leaved* Pittosporum.

App. i. *Other Species of Pittósporum.* ✱ ⊔ 359
P. revolútum *Ait.* ✱ ⊔
P. tomentòsum *Bonp.* ✱ ⊔
P. fúlvum *Rudge.* ✱ ⊔
P. hírtum *Willd.* ✱ ⊔
P. eriocárpum. ✱ ⊔

App. I. *Pittosporàceæ probably half-hardy.* ✱ ⊔ - - - 359
Senàcia nepalénsis *Dec.* ✱ ⊔, Bursària spinòsa *Cav.* ✱ ⊔, Cheiranthèra lineàris *Lindl.*

Caryophyllàceæ. ⁓ 359

1. Diánthus Caryophýllus var. fruticòsus *Hort.* ⁓ - - - 359
The shrubby Clove Pink.

Other suffruticose evergreen Caryophyllàceæ. ⁓ - - 359
Diànthus arbúscula *Bot. Reg.* ⁓, arbòreus *L.* ⁓ fig. 84., fruticòsus *L.* ⁓, suffruticòsus *W.* ⁓
Silène fruticòsa *L.* ⁓
Arenària verticillàta *W.* ⁓
Drýpis spinòsa *L.* ⁓

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Linàceæ. ♄ ♄ ⊔ - 360
Línum arbòreum L. ♄ ⊔ fig. 86.
L. taúricum *W.* ♄
L. salsolöides *Lam.* ♄
L. suffruticòsum. ♄ ⊔

Malvàceæ. ✱ ? ✱ ✱ ⊔ 362

I. LAVA'TERA L. ? ✱ ✱ ⊔ - 360
The Lavatera, *or Tree Mallow.*
Lavatère, Fr. and Ger.

1. marítima *Gouan* ✱ ⊔ France f. 87. 360
The sea-*side-inhabiting* Lavatera.
L. hispánica Mill.
L. rotundifòlia Lam.

2. tríloba *L.* ⊔ ✱ Spain - 361
The three-lobed-*leaved* Lavatera.

3. subovàta *Dec.* ✱ Morocco - 361
The subovate-*leaved* Lavatera.

4. africàna *Cav.* ✱ ⊔ N. Africa 361
The African Lavatera.
L. híspida var. Willd.

Other Species of Lavátera, likely to prove half-hardy. ✱ ⊔ - 361
L. Pseùdo-O'lbia *Poir.* ✱ ⊔
L. phœnícea *Vent.* ✱ ⊔
L. O'lbia *L.* ✱ ⊔
L. unguiculàta *Desf.* ✱ ⊔
L. híspida *Desf.* ✱ ⊔

II. *HIBI'SCUS L.* ✱ - 360, 361
The Hibiscus.
Ketmie, Fr,
Eibisch, Ger.

1. syrìacus *L.* ✱ Syria - fig. 88. 362
The Syrian Hibiscus.
Althæa Frutex.
Ketmie des Jardins, Fr.
Syrischer Eibisch, Ger.

Varieties ✱ - 362
2 fòliis variegàtis ✱
3 flòre variegàto ✱
4 flòre purpùreo ✱
5 flòre purpùreo-plèno ✱
6 flòre rùbro ✱
7 flòre álbo ✱
8 flòre àlbo-plèno ✱

App. I. *Other ligneous Plants of the Order Malvàceæ, which will probably be found hardy or half-hardy.* ♄ ☐ - - 363
Sìda pulchélla *Bonpl.* ♄ ☐ fig. 89.
Abùtilon *pulchéllum* Bot. Mag.

Sterculiàceæ. † ⊔ - 633

Sterculìa platanifòlia *L.* † ⊔ fig. 90.
S. lanceolàta *Cav.*
S. diversifòlia *G. Don.* † ⊔
S. tomentòsa *Thunb.*
S. peltàta *G. Don.*

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Tiliàceæ Lindl. ♆ - 364

I. *TI'LIA L.* ♆ - - 364
THE LIME TREE.
Lime Tree, Gerard.
Lind, Anglo-Sax.
Tilleul, Fr.
Linde, Ger. and Dutch.
Tiglio, Ital.
Tilo, Spain.
Lipa, Russ.

1. europæ'a *L.* ♀ Europe pl. 14, 15. 364
The European, *or common*, Lime Tree.
T. *intermèdia* Dec.
T. *vulgàris* Hayne.
T. *europæ'a boreàlis* Wahl.

Varieties. ♆

2 microphýlla - - 364
The small-leaved European Lime Tree.
T. *microphýlla* Vent.
T. *e. var γ* L.
T. *ulmifòlia* Scop.
T. *sylvéstris* Desf.
T. *parvifòlia* Ehrh.
T. *cordàta* Mill.
Tilleul à petites Feuilles, Fr.
Kleinblättrige Linde, *Winterlinde*, Ger.

? *Subvariety.* ♆ - - 365
T. parvifòlia glaúca *Hort.* ♆

3 platyphýlla ♆ - pl. 16. 365
The broad-leaved European Lime Tree.
T. *platyphýlla* Scop.
T. *cordifòlia* Bess.
T. *europæ'a* Desf.
T. *grandifòlia* Ehrh.
Broad-leaved downy Lime Tree.
Tilleul à grandes Feuilles, *Tilleul de Hollande*, Fr.

4 rùbra ♆ - - 365
The red-*twigged* European Lime Tree.
T. *triflòra* Puer.
T. *corinthìaca* Bosc.
T. *coràllina* Hort. Kew.
T. *europæ'a β rùbra* Sibthorp.
T. *europæ'a γ* Smith Fl. Brit.
T. *grandiflòra β* Smith Eng. Flor.

5 laciniàta - pl. 17. 366
The cut-*leaved* European Lime Tree.
T. *platyphýlla laciniàta* Hort.

6 aúrea ♆ - pl. 18. 366
The golden-*twigged* European Lime Tree.

7 platyphýlla aúrea ♆ - 366
The golden-*twigged* broad-leaved European Lime Tree.

8 dasýstyla ♆ - - 366
The hairy-styled European Lime Tree.
T. *dasýstyla* Steven.

Other Varieties - 366
With variegated Leaves.
T. a spleniifòlia nòva *Boll. Cat.*, a subvar. of e. laciniàta.
e. aúrea, a new var. of, *Baum.*
e. rubicaúlis *Bot. Gard. Ant.*

2. (eur.) álba *Waldst. et Kit.* ♆ Hungary pl. 19. 372
The white-*leaved* European Lime Tree.
T. *americàna* Du Roi.
T. *argéntea* Desf.
T. *rotundifòlia* Vent.
T. *tomentòsa* Mœnch.

? Variety ♆ - - - 373
petiolàris *Dec.* ♆
The *long*-petioled-*leaved* Lime Tree.

3. americàna *L.* ♆ North America pl. 20. 372
The American Lime Tree.
T. *glàbra* Vent.
T. *caroliniàna* Wangenh.
T. *canadénsis* Michx.
The smooth-leaved, or black, Lime Tree, and Brass Wood, Amer.

Varieties.

2 laxiflòra ♆ - 374
The loose-*cymed*-flowered American Lime Tree.
T. *laxiflòra* Michx.

3 pubéscens ♆ - pl. 22. 374
The pubescent-*leaved* American Lime Tree.
T. *pubéscens* Hort. Kew.
T. *caroliniàna* Mill.
T. *americàna* Walt.

4 pubéscens leptophýlla ♆ - 375
The thin-leaved pubescent American Lime Tree.
T. *pubéscens leptophýlla* Vent.
T. *mississippénsis* Desf.

5 heterophýlla ♆ - 375
The various-leaved American Lime-Tree.
T. *heterophýlla* Vent.
T. *álba* Michx.
The White Lime.

App. i. *Doubtful Varieties of* Tília *europæ'a and americàna.* - - 176
T. platyphýlla vèra, *T.* p. minor, *T.* præ'cox, *T. viti*fòlia, *T.* laxiflòra microphýlla, and *T.* pubéscens rugòsa.

App. I. *Other Species belonging to the Order* Tiliàceæ. ✺□ ✺⊔ - 376
Grèwi*a* L. ✺ □ ✺ ⊔
oppositifòlia *Roxb.* ✺ □
dìdyma. ✺
bíloba *G. Don.* ✺
occidentàlis *L.* ✺ ⊔
populifòlia *Vahl.* ✺
pùmila *Ham.* ✺
velutìna *Vahl.* ✺
echinulàta *Delile.*

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*Ternströmi*àceæ. ♆ ♀ ✺ ⊔ 376

Sect. I. *Hardy and half-hardy ligneous Plants belonging to the Tribe Gordon*ièæ. 376

I. MALACHODE'NDRON *Cav.* ♆ 377
THE MALACHODENDRON.
Stuártia L'Hérit.
Stewártia L.

1. ovàtum *Cav.* ♆ N. Am. fig. 91. 377
The ovate-*leaved* Malachodendron.
Stuártia pentagýnia L'Hérit.
Stewártia Malachodéndron.
Stewartia à cinq Styles, Fr.

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II. STUA'RT*IA* Cav. ✱ - 377, 378
THE STUARTIA.

1. virgínica *Cav.* ✱ N. America f. 92. 378
The Virginian Stuartia.
Stewártia Malachodéndron L.
Stuártia marilándica Bot. Rep.
Stewartia à un Style, Fr.
Eingriffliche (*one-styled*) *Stuartie*, Ger.

III. GORDO'N*IA* Ellis. ↟ 🌳 377, 378
THE GORDONIA.

1. Lasiánthus *L.* 🌳 N. Am. fig. 93. 379
The woolly-flowered Gordonia, *or Loblolly Bay.*
Hypéricum Lasiánthus L.
Gordonia à Feuilles glabres, Alcée de la Floride, Fr.
Langstielige Gordonie, Ger.

2. pubéscens *Ph.* ↟ Georgia f. 94. 380
The pubescent Gordonia.
Lacathèa flórida Sal.
Franklínia americàna Marsh.
The Franklinia, Amer.
Behaarte Gordonie, Ger.

Varieties - - 380
velutìna *Dec.*
G. pubéscens L'Hér.
subglàbra *Dec.*
G. Fránklini L'Hér.
Franklínia Alhatamàha *Marsh.*

Sect. II. *Hardy and half-hardy ligneous Plants belonging to the Tribe Camellièæ.* ✱ ⊔ - - - - 381

1. CAME'LL*IA* L. ✱ ⊔ - 381
THE CAMELLIA.
The Japan Rose.
Camellier, Rose du Japon, et de la Chine, Fr.
Camellie, Ger.

1. japónica *L.* ✱ ⊔ Japan fig. 95. 382
The Japanese Camellia, *or Red single-flowered Camellia.*

Varieties.

Chinese in general Cultivation. ✱ ⊔ - 383
2 variegàta *Bot. Rep.* ✱ ⊔
3 incarnàta *Bot. Reg.* ✱ ⊔
4 álba plèna *Bot. Rep.* ✱ ⊔
5 fimbriàta *Lodd.* ✱ ⊔
6 rùbra plèna *Bot. Rep.* ✱ ⊔
7 *a*nemoneflòra ✱ ⊔ fig. 96.
8 crassinérvis *Lodd.* ✱ ⊔
9 *m*yrtifòlia *Bot. Mag.* ✱ ⊔
10 involùta *Bot. Reg.* ✱ ⊔
11 variábilis ✱ ⊔
12 *Pompònia* Bot. Reg. ✱ ⊔
Subvarieties ✱ ⊔
pæoniæflòra ròsea ✱ ⊔
álba ✱ ⊔
pállida ✱ ⊔
13 semidùplex *Bot. Rep.* ✱ ⊔
14 átro-rùbens *Bot. Cab.* ✱ ⊔
15 Welbánk*ii* Chandl. Ill. ✱ ⊔
lùteo-álbicans Bot. Reg.
flavéscens.
16 ròsea *Don's Mill.* ✱ ⊔
17 speciòsa *Hort. Trans.* ✱ ⊔
C. Rawesiàna Hort.
18 cárnea *Bot. Reg.* ✱ ⊔
19 imbricàta *Hort. Trans.* ✱ ⊔
20 Párks*ii* Hort. Trans. ✱ ⊔
21 Sabin*iàna* Hort. Trans. ✱ ⊔

Chinese and other Foreign Varieties not in general Cultivation, but in all probability as hardy as the others. ✱ ⊔ - - 386
22 candidíssima ✱ ⊔
23 Donklàer*i* ✱ ⊔
24 francofurténsis ✱ ⊔
25 hýbrida *Makoy.* ✱ ⊔

Other Names of Foreign Varieties. ✱ ⊔ - - 386
argéntea, Gunnélli, Pronay*àna*, violàcea supérba.
The semidouble white, the rose-coloured waratah, hexangulàris.

Varieties originated in Britain. ✱ ⊔ - - 386
26 corállina *Chandl.* ✱ ⊔
27 exímia *Chandl.* ✱ ⊔
28 Wilton*i* Chandl. ✱ ⊔
29 Chándler*i* Chandl. ✱ ⊔
versícolor Bot. Reg.
30 flòre-álbo *Chandl.* ✱ ⊔
31 *a*lthææflòra *Chandl.* ✱ ⊔
32 *a*nemoneflòra álba *Chandl.* ✱ ⊔
33 Woóds*ii* Chandl. ✱ ⊔
34 punctàta *Chandl.* ✱ ⊔
35 élegans *Chandl.* ✱ ⊔
36 flórida *Chandl.* ✱ ⊔
37 *r*òsea *Chandl.* ✱ ⊔
38 eclípsis *Chandl.* ✱ ⊔
39 insígnis *Chandl.* ✱ ⊔
40 álba semidùplex *Chandl.* ✱ ⊔
41 concínna *Chandl.* ✱ ⊔
42 spléndens *Chandl.* ✱ ⊔
coccínea *Hort. Brit.*
43 *R*òsa sinénsis *Lodd.* ✱ ⊔
44 Róss*ii* Chandl. ✱ ⊔
45 Aiton*i* Chandl. ✱ ⊔
46 epsoménsis *Chandl.* ✱ ⊔
47 Colvíll*i* Swt. ✱ ⊔
48 Sweet*iàna* Swt. ✱ ⊔
49 Knìght*ii* Lodd. ✱ ⊔
50 *R*òsa múndi *Don's Mill.* ✱ ⊔
51 Préss*ii* Don's Mill. ✱ ⊔
52 rùbro-punctàta ✱ ⊔
53 Elphinston*iàna* ✱ ⊔
54 single-striped and dotted ✱ ⊔
55 *aucubæ*fòlia *Hort. Brit.* ✱ ⊔
56 expánsa *Hort. Brit.* ✱ ⊔
57 Susánn*a* Gard. Mag. ✱ ⊔
58 Márth*a* Gard. Mag. ✱ ⊔
59 Wadie*àna* Gard. Mag. ✱ ⊔

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Clive*àna*, conspícua, decòra, prínceps, rotundifòlia, Pálmer*i*, Reevès*ii*, longifòlia, Dorsèt*ii*, péndula, Allnútt*a* álba, supérba.

2. reticulàta *Lindl.* ✱ ⊔ China - 389
The reticulate-*leaved* Camellia, *or Capt. Rawes's Camellia.*

3. *m*aliflòra *Lindl.* ✱ ⊔ China f. 97. 390
The Apple-*blossom*-flowered Camellia.
C. *Sasánqua* Bot. Mag.
C. *Sasánqua* ròsea Hort.
Palmer's double Sasanqua.

4. *Sasánqua* Thunb. ✱ ⊔ China f. 98. 390
Sasanqua, *or Lady Banks's*, Camellia.
Sasánqua Kæmpf.
Cha-wha, Chinese.

5. *Kíssi* Wall. ✱ ⊔ Nepal fig. 99. 390
The Kissi Camellia.
C. Keina Hamil. MSS.

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6. oleífera *Abel.* ♣ ⊔ Cochin-China fig. 100. 391
The oil-bearing Camellia.
7. euryòìdes *Lindl.* ♣ ⊔ China fig. 101. 391
The Eurya-like Camellia.
Thèa *euryòides* Booth.

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THE TEA TREE.
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The *common, or* green, *Tea.*
T. Bohèa *stricta* Ait.
T. *sinénsis* Sims.
T. *chinénsis var. α viridis* Dec.
*Camél*lia *viridis* Link.
Thèa *cantonénsis* Lam.
2. *Bohèa* L. ♣ ⊔ China fig. 103. 393
The Bohea, *or black,* Tea.
T. *chinénsis β* Bohèa *Sims.*
3. cochinchinénsis *Lour.* ♣ ⊔ Cochin-China - - 395
The Cochin-China Tea.
4. oleòsa *Lour.* ♣ ⊔ China - 395
The oily Tea.
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II. *LIMO'NIA* ♣ ⊔ - 396
L. Laurèola *Dec.*
L. citrifòlia *Willd.*
L. parviflòra *Bot. Mag.*
L. austràlis.

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✿ ♣ ⚘ ☘ ♣ ⊔ ⚘ ⌋ ⚘ ⌋ ☘ ⊔ ☘ ⌋
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THE ST. JOHN'S WORT.
Fuga Dæmonum.
Mille Pertuis, Fr.
Johanniskraut, Ger.

§ i. *Ascyrèia* Chois. - 398
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The tall St. John's Wort.
2. hircìnum *L.* ✿ Mediterranean fig. 105 398
The Goat-scented St. John's Wort.
Tràgium Clus.
Androsæ'mum *fœ'tidum* Bauh.
Mille Pertuis à Odeur de Bouc, Fr.
Varieties ✿ - - 398
2 obtusifòlium *Dec.* ✿
3 mìnus *Wats.* ✿

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3. grandiflòrum *Chois.* ♣ ⊔ Teneriffe 298
The large-flowered St. John's Wort.
H. *canariénse* Willd., not of L.
4. foliòsum *Ait.* ♣ ⊔ Azores - 398
The leafy St. John's Wort.
Shining St. John's Wort.
5. floribúndum *Ait.* ♣ ⊔ Canaries 398
The abundant-flowered St. John's Wort.
H. *frutéscens* Comm.
Many-flowered St. John's Wort.
6. olýmpicum *L.* ✿ Mount Olympus fig. 106. 399
The Olympian St. John's Wort.
H. *móntis Olýmpi* Wheel.
H. *orientàlis flòre màjus* Tourn.
7. canariénse *L.* ♣ ⊔ Canaries - 399
The Canary *Island* St. John's Wort.
Varieties ♣ ⊔ - - 399
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8. chinénse *L.* ♣ ⊔ China - 399
The Chinese St. John's Wort.
H. *monógynum* Mill.
H. *aùreum* Lour.
9. cordifòlium *Chois.* ♣ ⊔ Nepal 399
The heart-leaved St. John's Wort.
H. *bracteàtum.*
H. *Lungùsum* Ham. MSS.
10. pàtulum *Thun.* ♣ ⌋ Japan - 399
The spreading St. John's Wort.
11. Kalm*iànum* Lam. ♣ N. America 400
Kalm's St. John's Wort.
H. *Bartràm*ium *Mill.*
Virginia St. John's Wort.
12. *Uràlum* Ham. ✿ Nepal fig. 107. 400
The Urala St. John's Wort.
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The *large*-calyxed St. John's Wort.
Androsæ'mum constantinopolitànum flòre máximo Wheeler.
The large-flowered St. John's Wort, The large-flowering Tutsan, The terrestrial Sun, Aaron's Beard.
Mille Pertuis à grandes Fleurs, Fr.
Grossblumiger Johannis Kraut, Ger.
14. baleáricum *L.* ☘ ⊔ Majorca - 400
The Majorca St. John's Wort.

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The prolific St. John's Wort.
H. *foliòsum* Jacq.
H. *Kalm*iànum *Du Roi.*
16. heterophýllum *Vent.* ☘ ⊔ Persia 401
The various-*leaved* St. John's Wort.
17. ægyptìacum *L.* ☘ ⊔ Egypt 401
The Egyptian St. John's Wort.
18. *galiòìdes Lam.* ☘ N. America 401
The Galium-like-*leaved* St. John's Wort.
19. axillàre *Lam.* ☘ N. America 401
The axillary-*flowered* St. John's Wort.
H. *fasciculàtum* Willd.
H. *Còris* Walt.
20. glandulòsum *Ait.* ☘ ⊔ Madeira 402
The glandular St. John's Wort.
21. serpyllifòlium *Lam.* ⚘ Levant 402
The Wild-Thyme-leaved St. John's Wort.

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22. empetrifòlium *Willd.* ♣ ⌋ S. Europe fig. 108. 402
The Empetrum-leaved St. John's Wort.

23. Còris *L.* ♣ ⌋ Levant. 402
The Coris-*leaved* St. John's Wort.

24. ericöìdes *L.* ♣ ⌋ Spain 402
The Heath-like St. John's Wort.

§ iii. *Bràthyæ* Chois. ♣ ⌋ 402

25. fasciculàtum *Lam.* ♣ ⌋ Carolina 402
The fascicled-*leaved* St. John's Wort.
H. *aspalathöìdes* Pursh.

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H. rèpens, *H.* linearifòlium, *H.* oblongifòlium, and *H.* japónicum *Dec.*

II. *A*NDROSÆ'MUM *Chois.* ♣ 397. 403
The Androsæmum, *or Tutsan.*
Hypéricum L.
Androsème, Fr.
Johanniskraut, Ger.

1. officinàlis *Allioni.* Levant ♣ f. 109. 403
The officinal Androsæmum, *or common Tutsan.*
Clýmenon Italòrum L'Obel.
Hypéricum Androsæ'mum L.
Park Leaves.
Androsème officinale, Fr.
Breit-blättriges (*broad-leaved*) *Johanniskraut*, Ger.

Aceràceæ Lindl. ‡ ♠ ‡ ⌋ ♠ ⌋ 404

I. *A*'CER *L.* ‡ ♠ ‡ ⌋ ♠ ⌋ 405
The Maple.
E'rable, Fr.
Ahorn, Ger.
Acero, Ital.
Arce, Spanish.

1. oblóngum *Wall.* ‡ ⌋ Nepal fig. 113. in p. 433. - - - 405
The oblong-*leaved* Maple.
A. *laurifòlium* D. Don.
A. Buzimpàla *Hamilt.*

2. tatáricum *L.* ‡ Tartary pl. 23. f. 114. in p. 434. - - - 406
The Tartarian Maple.
E'rable de Tartarie, Fr.
Tartarische Ahorn, Ger.
Zarza-modon, or Locust Tree, Russ.

3. spicàtum *L.* ‡ North America pl. 24. fig. 115. in p. 435. - - 406
The spike-*flowered* Maple.
A *montànum* Ait.
A. *pennsylvánicum* Du Roi.
A. *parviflòrum* Ehrh.
Mountain Maple.
E'rable de Montagne, Fr.
Berge Ahorn, Ger.

4. striàtum *L.* ‡ North America pl. 25. fig. 116. in p. 436, 437. - 407
The striped-*barked* Maple.
A. *pennsylvánicum* L.
A. *canadénse* Marsh.
Snake-barked Maple, Moose Wood, Striped Maple, E'rable jaspé, Fr.
Gestreifter Ahorn, Ger.

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5. macrophýllum *Pursh.* ‡ North America pl. 26. fig. 117. in p. 438, 439., and 118. in p. 440, 441. - - - 408
The long, *or large*, leaved Maple.

6. *p*latanöìdes *L.* ‡ Europe pl. 27. fig. 119. in p. 442, 443. - 408
The Platanus-like, *or Norway*, Maple.
E'rable plane, E'rable de Norvège, Fr.
Spitz-Ahorn, Spitz-blättriger Ahorn, Ger.

Varieties. ‡

2 Lobèlii ‡ f. 120. in p. 444. 409
Lobel's Platanus-like Maple.
A. *Lobèlii Tenore.*
A. *platanöìdes* Don's Mill.

3 pubéscens *Hayne.* ‡ - - 409
The downy-*leaved* Platanus-like Maple.

4 variegàtum *Hort.* ‡ - 409
The *silver* variegated-*leaved* Platanus-like Maple.
álbo variegàtum Hayne.

5 aúreo variegàtum ‡ - - 409
The golden variegated-*leaved* Platanus-like Maple.

6 laciniàtum *Dec.* ‡ pl. 28. fig. 121. in p. 445. - 409
The cut-*leaved* Platanus-like Maple.
? A. p. *críspum* Lauth.
The Eagle's Claw, or Hawk's Foot Maple.

7. sacchárinum *L.* ‡ North America pl. 29. fig. 122. in p. 446, 447. 411
The Sugar Maple.
Rock Maple, Hard Maple, Bird's-Eye Maple.

Variety ‡ - - 411

2 nìgrum ‡
The black Sugar Tree, *or Rock Maple.*
A. *nìgrum* Michx.

8. Pseùdo-*P*látanus *L.* ‡ Europe pl. 30, 31. fig. 123. in p. 448, 449. 414
The Mock Plane Tree, *the Sycamore, or Great Maple.*
Plane Tree, Scotch.
E'rable Sycamore, E'rable blanc de Montagne, Fausse Platane, Grand E'rable, Fr.
Ehrenbaum, Weisser Ahorn, Gemeine Ahorn, Ger.

Varieties.

2 flàva variegàta ‡ - - 414
The yellow variegated Sycamore, *or Costorphine Plane, with leaves variegated with yellow.*

3 álbo variegàta *Hayne* ‡ - 414
The white variegated-*leaved* Sycamore.

4 purpùrea *Hort.* ‡ - - 415
The purple-*leaved* Sycamore.

5 subobtùsa *Dec.* ‡ - - 415
The half-obtuse-*leaved* Sycamore.
A. *opulifòlium* Thuil.
A. *vitifòlium* Opiz.

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her Varieties - - 415
Hodgkins's Seedling, *Hort.*
Leslie's Seedling, *Hort.*
stenóptera *Hayne.*
macróptera *Hayne.*
micróptera *Hayne.*

9. obtusàtum *Kit.* 🌳 Hungary pl. 32. fig. 124. in p. 450, 451. - 420
The obtuse-*lobed-leaved* Maple.
A. *neapolitànum* Tenore.
A. *hýbridum* Hort.
The Neapolitan Maple.

10. barbàtum *Michx.* 🌳 North America pl. 33. fig. 125. in p. 452. - 420
The bearded-*calyxed* Maple.
A. *caroliniànum* Bolt.
A. *trilobàtum* Hort.

11. O'palus *Dec.* 🌳 Italy pl. 34. fig. 126. in p. 453. - - 421
The Opal, *or Italian,* Maple.
A. *O'palus* L.
A. *rotundifòlium* Lam.
A. *itálicum* Lauth.
A. *villòsum* Pres.
L'E'rable Opale, E'rable à Feuilles rondes, E'rable d'Italie, Fr.

Variety 🌳 - - 421
? *A.* coriàceum *Lodd.* 🌳

12. opulifòlium *Vill.* 🌳 Pyrenees - 421
The Guelder-Rose-leaved Maple.
A. *hispánicum* Pour.
A. *vérnum* Reyn.
A. *montànum* C. Bauhin.
E'rable duret, E'rable à Feuilles d'Obier, Ayart in Dauphiné, Fr.
Schneeboll-blättriger Ahorn, Ger.

13. circinàtum *Pursh.* 🌳 North America fig. 112., and fig. 127. in p. 454. 422
The round-*leaved* Maple.

14. palmàtum *Thunb.* 🌿 ⊔ Japan fig. 128. in p. 455. - - 422
The palmate-*leaved* Maple.

15. eriocárpum *Michx.* 🌳 N. Amer. pl. 35, 36. fig. 129. in p. 456. - 423
The hairy-fruited, *or white,* Maple.
A. *dasycarpum* Willd.
A. *tomentòsum* Hort. Par.
A. *glaúcum* Marsh.
A. *virginiànum* Duh.
A. *rùbrum* Wagenh.
White, or soft, Maple, U. S.
Sir Charles Wager's Maple.
E'rable à Fruits cotonneux, E'rable blanc, Fr.
Rauher Ahorn, Ger.

16. rùbrum *L.* 🌳 N. America pl. 37, 38. fig. 130. in p. 457. - - 424
The red-*flowering, or scarlet,* Maple.
A. *virginiànum* Herm.
A. *coccíneum* Ait.
Soft Maple, Swamp Maple, Red Maple.
E'rable rouge, Fr.
Rother Ahorn, Ger.

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Varieties 🌳 - - 424
2 coccíneum 🌳
3 intermèdium 🌳

17. monspessulànum *L.* 🌳 South Europe pl. 39, 40. fig. 131. in p. 458. 427
The Montpelier Maple.
A. *trílobum* Mœnch.
A. *trifòlium* Duh.
A. *trilobàtum* Lam.
E'rable de Montpelier, Fr.
Französischer Ahorn, Ger.

18. campéstre *L.* 🌳 Europe pl. 41, 42. fig. 132. in 458. - - 428
The *common,* or Field, Maple.
E'rable champêtre, Fr.
Kleiner Ahorn, Feld Ahorn, Ger.

Varieties. 🌳

1 hebecárpum *Dec.* 🌳 - 428
The downy-fruited Field Maple.
A. *campéstre* Wallr.
A. *mólle* Opiz.

2 fòliis variegàtis 🌳 - 428
The variegated-leaved Field Maple.
A. *Pseùdo-Plátanus.*

3 collìnum *Wallr.* 🌳 - 428
The hill-*inhabiting* Field Maple.
A. *affìne* and A. *macrocárpum* Opiz.

4 austrìacum *Tratt. Arch.* 🌳 428
The Austrian Field Maple.

19. créticum *L.* 🌳 Crete pl. 43. fig. 132. in p. 459. - - 430
The Cretan Maple.
A. *heterophýllum* Willd.
A. *sempervìrens* L.
E'rable de Crète, Fr.
Cretischer Ahorn, Ger.

App. i. *Doubtful Species of* A'cer. - 430
A. O'palus, *A.* opulifòlium, *A.* barbàtum, *A.* coriàceum, *A.* Lobèl*ii*, *A.* nìgrum, *A.* platanöìdes, *A.* sacchárinum, *A.* hýbridum, *A.* obtusifòlium, *A.* obtusàtum, *A.* lobàtum.

App. ii. *Anticipated Species of* A'cer. 🌳 431
A. ibéricum *Bieb.* 🌳
A. obtusifòlium *Sibth.* 🌳
A. parvifòlium *Tausch.* 🌳
A. *créticum* of some,
A. *monspessulànum* of others.
A. glàbrum *Torrey.* 🌳
A. lævigàtum *Wall.* 🌳
A. acuminàtum *Wall.* 🌳
A. cultràtum *Wall.* 🌳
A. caudàtum *Wall.* 🌳
A. villòsum *Wall.* 🌳
A. sterculiàceum *Wall.* 🌳
A. disséctum *Thun.* 🌳
A. japónicum *Thun.* 🌳
A. septenílobum *Thun.* 🌳
A. píctum *Thun.* 🌳
A. trífidum *Thun.* 🌳
A. truncàtum *Bunge.* 🌳

App. iii. *Half-hardy Species of* A'cer. 432
🌳 ⊔ 🌿 ⊔
A. palmàtum *Thun.* 🌿 ⊔
A. oblóngum *Wall.* 🌳 ⊔

II. *NEGU'NDO* Mœnch. 🌳 405. 460
The Negundo, *or Box Elder.*
A'*cer* L.
Negúndium *Rafin.*

Page
1. *f*raxinifòlium *Nutt.* 🌳 North America pl. 44. 460
The Ash-leaved Negundo.
A'*cer* Negúndo *L.*
N. *aceröìdes* Mœnch.
Negúndium *americànum* Rafin.
The Ash-leaved Maple, The black Ash.
E'rable à Feuilles de Frêne, Fr.
E'rable à Giguières, Illinois.
Eschenblättriger Ahorn, Ger.

Variety 🌳 460
2 críspum *G. Don.* 🌳 - pl. 45.
The curled-*leaved* Ash-leaved Negundo, *or Box Elder*

App. i. *Anticipated Species of* Negúndo. 🌳 462
N. mexicànum *Dec.* 🌳
A *ternàtum* Moc.
? N. *fraxinifòlium var.* Dec.
N. cochinchinénse *Dec.* 🌳

App. I. *Other Aceràceæ.* 🌿 - 462
Dobínea vulgàris *Hamilt.* 🌿

Æsculàceæ Lindl. 🌳 🌿 - 462
Castaneàceæ Link.
Hippocastàneæ Dec.

I. *Æ'*SCULUS *L.* 🌳 - - 462
THE HORSECHESTNUT.
Hippocástanum Tourn.
Marronier d'Inde, Fr.
Rosskastanie, Ger.

1. Hippocástanum *L.* 🌳 ..... pl. 46, 47. 463
The *common* Horsechestnut.
Hippocástanum vulgàre Tourn.
Marronier d'Inde, Fr.
Gemeine Rosskastanie, Ger.

Varieties. 🌳
2 flòre plèno 🌳 - - 463
The double-flowered Horsechestnut.
3 variegàta 🌳 - - 463
The variegated-*leaved* Horsechestnut.

2. (H.) ohioénsis *Michx.* 🌳 N. Am. 467
The Ohio Æsculus, *or Horsechestnut.*

3. (H.) rubicúnda *Lois.* 🌳 N. America pl. 48. 467
The reddish-*flowered* Æsculus, *or Horsechestnut.*
Æ. *cárnea* Hort.
Æ. *ròsea* Hort.
Æ. *coccínea* Hort.
Æ. *Hippocástanum var. rubicúndum* Schubert.
Whitley's fine scarlet.

4. (H.) glàbra *Willd.* 🌳 North America fig. 133. 467
The smooth-*leaved* Æsculus, *or Horsechestnut.*

5. (H.) pállida *Willd.* 🌳 N. Am. f. 134. 468
The pale-*flowered* Æsculus, *or Horsechestnut.*
Gelbliche Rosskastanie, Ger.

6. (H.) Lyòn*ii* Hort. 🌳 468
Lyon's Æsculus.

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App. i. *Other Sorts or Varieties of Æ's culus.* 468
Whitley's fine scarlet
Æ. americàna
Æ. H. incìsum
Æ. H. præ'cox
Æ. H. tortuòsum
Æ. H. nìgrum

II. PA'V*IA* Boerh. 🌳 🌿 462. 469
THE PAVIA, *or Smooth-fruited Horsechestnut Tree.*
Pavier, Fr.

1. rùbra *Lam.* 🌳 N. Am. pl. 49, 50. 469
The red-*flowered* Pavia.
Æ'sculus Pàvia L.
Æ'sculus Pàvia var. α rùbra Hayne.
P. parviflòra Hort.
Small Buckeye, Amer.
Marronier Pavie, Pavie à Fleurs rouges, Fr.
Rothe Rosskastanie, Ger.

Varieties. 🌳
2 argùta *G. Don* 🌳 fig. 135. 469
The sharp-*toothed-leaved* red-*flowered* Pavia.
Æ'sculus Pàvia parviflòra Hort.
3 sublaciniàta *Wats.* 🌳 - 470
The slightly cut-*leaved* red-*flowered* Pavia.
4 hùmilis 🌿 - pl. 51. 470
The dwarf red-*flowered* Pavia.
P. hùmilis G. Don.
Æ'sculus hùmilis Lodd.
5 hùmilis péndula 🌳 - 470
The pendulous-*branched* dwarf red-*flowered* Pavia.

2. flàva *Dec.* 🌳 Carolina pl. 52, 53. 471
The yellow-*flowered* Pavia.
Æ'sculus flàva Ait.
Æ. lùtea Wangh.
P. lùtea Poir.
The large Buckeye, Big Buckeye, Amer.
The yellow Pavia.

3. díscolor *Swt.* 🌿 N. America - 472
The two-coloured-*flowered* Pavia.
Æ'sculus díscolor Ph.

4. hýbrida *Dec.* 🌳 Hybrid - 472
The hybrid Pavia.
Æ'sculus hýbrida Dec.

5. neglécta *G. Don.* 🌳 ..... fig. 136. 472
The neglected Pavia.
Æ'sculus neglécta Lindl.

6. macrocárpa *Hort.* 🌳 ..... pl. 54. 473
The long-fruited Pavia.
Æ'sculus Pàvia macrocárpa Lodd.
Pàvia macrocárpa Hort.

7. macrostàchya *Lois.* 🌿 North America fig. 137. 473
The long-racemed Pavia.
Æ'sculus parviflòra Walt.
Æ. macrostàchya Mx.
Pàvia álba Poir.
Pàvia edùlis Poit.
Pàvier à longs E'pis, Pavier nain, Fr.
Langährige Rosskastanie, Ger.

App. i. *Other Varieties of Pàvia.* - 474
P. serràta, P. erécta, *Æ'*sculus Pàv*ia* flàva var. *Hort.*

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Sapindàceæ. ⚘ ✱☐ ✱⊔ 474

I. KÖLREUTE`R*IA* Laxm. ⚘ - 475
The Kolreuteria.
Sapindus sp. L. fil.

1. paniculàta *Laxm.* ⚘ China pl. 55. 475
The panicled-*flowering* Kolreuteria.
Sapindus chinénsis L. fil.
*K. paulli*niöìdes *L'Hérit.*
Savonnier paniculé, Fr.
Rispentragende Kolreuterie, Ger.

App. I. *Half-hardy ligneous Species of Sapindàceæ.* ✱☐ ✱⊔ - 476

Dodonæ'*a* viscòsa *L.* ✱⊔
D. alternàta *Cunning.*
D. jamaicénsis *Dec.* ✱☐
D. angustifòlia Swz.
D. viscòsa Cav.
D. salicifòlia *Dec.* ✱⊔
D. angustifòlia Lam.
Bois de reinette, Fr.
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D. tríquetra *Bot. Rep.* ✱⊔
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Vid, Span.
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E. *vulgàris* Mill.
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E. Thunbergi*ànus* Blume 🌿
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Celaster, Ger.

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Stechpalme, Stecheiche, Stechbaum, Stechlaub, Hulse, Hulsenbaum, Hulsenstrauch, Hulzt, Hulchs, Holst, Habze, Hullgenolz, Myrtendorn, Christdorn, Mausdorn, Zwieseldorn, Kleezebusch, Stechapsel, Stechwinde, Waldistel, Ger.
Stikpalme, Maretorn, Christorn, Skoutisdel, Dan.
Jernek, Christiorn, Swed.
Le Houx, le grand Housson, l'Agron grand Pardon, Bois Franc, Fr.
Agrifolio, Alloro spinoso, Ital.]
Acebo, Agrifolio, Span.
Azevinho, Agrifolio, Acrifolio, Aginfolio, Port.
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19 aúreo-píctum *Hort.* ♀
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Dahoon Holly.
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6. angustifòlia *Willd.* ♣ N. Amer. f. 185. 517
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Cassìne Perágua *Mill.*
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I. *religiòsa* Bart.
I. *floridàna* Lam.
Houx apalachine, Fr.
True Cassene, Cassene, Floridan.
The Yapon, Virginian.
The evergreen Cassena, Cassioberry-bush, South Sea Tea, Eng.

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Dwarf, or yellow-berried, Buckthorn; Avignon Berry.
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R. Pursh*iánus* Dec. (*R.* alnifòlius *Pursh*) f. 211.
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R. celtidifòlius *Thunb.*
R. crenulàtus *Ait.*
R. serrulàtus *H. B. et Kunth.*
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R. umbellàtus *Cav.*
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V. *C*EANO`THUS *L.* ✿ ✿ - 539
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C. *cærùleus* Lag.
C. *bicolor* Willd.

2. americànus *L.* ✿ N. Amer. 214. 539
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C. *hypericöides* L'Hérit.

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  R*hámnus capénsis* Thunb.
  Ceanòthus capénsis Dec.
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*R. E'*phedra *Brongn.*
  R. *E'phedra* Brongn.
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C. fèrox *Gill.*
C. ulícina *Gill.*
C. *Chacàye* G. Don.
  R*hámnus* Chacàye *Domb.*
C. tetragòna *Brongn.*
Trev*òa* quinquenérvis *Mey.*
T. trinérvis
Discària americàna *Hook.*
D. austràlis *Hook.*
Hovèn*ia* dúlcis *Thunb.*
Colubrìna triflòra *Brongn.*
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C. Mocini*àna* G. Don.
  *Ceanòthus Mociniàn*us *Dec.*
Willemèt*ia* africàna *Brongn.*
  Ceanòthus africànus Lin.
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Cryptándra *Sm.*, Bartling*ia* Brongn., Solenántha *G. Don*, Trichocéphalus *Brongn.*, Phýlica *L.*, Soulángi*a* Brongn., Gouàn*ia* Jacq., Carpodètus *Forst.*, *Olènia* Thunb.
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1. vèra *L.* ♣ Syria - fig. 221. 545
The true Pistacia Nut Tree.
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Amýris polýgama Cav.
Schìnus depéndens Ort.
Duvaúa depéndens α Hook.

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3. latifòlia *Gill.* ✹ Chili - fig. 243. 559
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1. europæ'a *L.* ✱ Europe f. 262, 263. 571
The European Furze
Genísta spinòsa L'Obel.
U. *grandiflòrus* Pour.
U. *vernàlis* Thore.
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Varieties - - 571
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stricta.

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Genísta juncea, Lam.
G. *odoràta* Mœnch.
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Spártium parviflòrum Vent.

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Spártium sericeum Vent., not of Ait.

3. cándicans *L.* ✱ Levant fig. 267. 578
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Cýtisus cándicans L.
Cýtisus pubéscens Mœnch.

4. tríquetra *Ait.* ✱ Spain fig. 268. 578
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G. *tríquetra* Lam. ?

5. bracteolàta *Lk.* ✱ ┘ - - 579
The bracteolated Genista.

6. umbellàta *Poir.* ✱ ┘ Barbary - 579
The umbellate-*flowered* Genista.
Spártium umbellàtum Desf.
Variety ✱ ┘ - - 579
2 capitàta *Dec.* ✱ ┘

7. lusitánica *L.* ✱ Portugal - 579
The Portugal Genista.

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8. (l.) radiàta *Scop.* ⚘ Italy f. 269. 519
The rayed-*branched* Genista.
Spártium radiàtum L.
G. *ilvénsis* Dalech.

9. ephedröìdes *Dec.* ⚘ Sardinia - 580
The Ephedra-like Genista.

10. triacánthos *Brot.* ⚘ Portugal 580
The three-spined Genista.
G. *rostràta* Poir.
Variety ⚘ - - 580
2 interrúpta *Dec.* ⚘

11. hórrida *Dec.* ⚘ Pyrenees - 580
The horrid Genista.
Spártium hórridum Vahl.
G. *erinàcea* Gilib.

12. sylvéstris *Scop.* ⚘ Austria - 580
The Wood Genista.
G. *hispánica* Jacq.

13. *Scórpius Dec.* ⚘ Europe - 580
The Scorpion Genista.
Spártium Scórpius L.
G. *spiniflòra* Lam.
Scorpion Furze, Gerard.

14. hispánica *L.* ⁂ Spain - - 581
The Spanish Genista.
Spanish Furze, Hort.

15. ánglica *L.* ⁂ Europe f. 270. 581
The English Genista, *or Petty Whin.*
G. *mìnor* Lam.

16. germánica *L.* ⚘ Europe f. 271. 581
The German Genista.
Scórpius spinòsus Mœnch.
Vóglera spinòsa Fl. Wett.
Variety ⚘ - - - 581
2 inérmis *Dec.* ⚘

17. púrgans *L.* ⚘ France - - 581
The purging Genista.
Spártium púrgans L.

18. serícea *Wulf.* ✱ Austria - - 581
The silky Genista.

19. humifùsa *L.* ✱ Levant - - 582
The trailing Genista.

20. aphýlla *Dec.* ⚘ Siberia - 528
The leafless Genista.
Spártium aphýllum L.
G. *virgàta* Lam.

21. monospérma *Lam.* ⚘ Mediterranean fig. 272. 582
The one-seeded Genista.
Spártium monospérmum L.
G. Ræ`tam *Forsk.*

22. sphærocárpa *Lam.* ⚘ S. Europe 582
The round-fruited Genista.
Spártium sphærocárpon L.

23. æthnénsis *Dec.* ⚘ Etna fig. 273. 582
The Mount Etna Genista.
Spártium æthnénse Biv.
Spártium trispérmum Smith.

24. scariòsa *Viv.* ⚘ Naples - - 583
The scarious-*margined-leaved* Genista.
G. *januénsis* Viv. Cat.
G. *genuénsis* Pers.

25. anxántica *Ten.* ✱ Nap. f. 274, 275. 583
The Anxantic Genista.
G. *amsántica* Tenore.

Page
26. tinctòria *L.* ⁂ Europe f. 276. 583
The Dyer's Broom, *or Green Weed.*
Base Broom, Green Weed, Dyer's Weed, Wood-waxen.
Genêt des Teinturiers, Genêt de Sibérie, Fr.
Farbender Ginster, Ger.
Varieties ⁂ - - 583
2 latifòlia *Dec.* ⁂
3 hirsùta *Dec.* ⁂
4 praténsis *Poll.* ⁂

27. (t.) sibírica *L.* ⚘ Siberia - 584
The Siberian Genista.
Genistöìdes elàta Mœnch.
G. *tinctòria var.* N. Du Ham.

28. (t.) tetragòna *Besser.* ⁂ Podolia 584
The quadrangular-*branched* Genista.

29. (t.) polygalæfòlia *Dec.* ⚘ Port. 584
The Milkwort-leaved Genísta.
G. *polygalæphýlla* Brot.
G. *exaltàta* Link.
G. *tinctòria lusitánica máxima* Tourn.

30. (t.) flórida *L.* ⚘ Spain - - 584
The florid Genista.

31. mántica *Poll.* ✱ Italy - - 584
The Mantuan Genista.

32. ovàta *Waldst.* ⚘ Hungary - 584
The ovate-*leaved* Genista.
G. *nervàta* Kit. in Litt.

33. pátula *Bieb.* ⚘ Tauria - - 584
The spreading Genista.

34. triangulàris *Willd.* ⁂ Hungary - 584
The triangular-*stemmed* Genista.
G. *tríquetra* Waldst., not of Ait.

35. sagittàlis *L.* ✱ Europe. fig. 277. 585
The arrow-*jointed* Genista.
G. *herbàcea* Lam.
Genistélla racemòsa Mœnch.
Saltzwedèlia sagittàlis Fl. Wett.
Variety ✱ - - 585
2 mìnor *Dec.* ✱

36. diffùsa *Willd.* ✱ Italy - - 584
The diffuse Genista.
G. *humifùsa* Wulf.
Spártium procúmbens Jacq., not of Ait.

37. prostràta *Lam.* ✱ France fig. 278. 585
The prostrate Genista.
G. *pendiculàta* L'Hérit.
G. *decúmbens* Dur. Bourg.
G. *Hálleri Reyn.*

38. procúmbens *Waldst. et Kit.* ✱ Hungary - - 585
The procumbent Genista.

39. pilòsa *L.* ✱ Europe - fig. 279. 586
The hairy Genista.
G. *rèpens* Lam.
Genistöìdes tuberculàta Mœnch.

40. pilocárpa *Link.* ✱ . . . . . - 586
The hairy-fruited Genista.

App. i. *Hardy Species of Genista not yet introduced.* - - 586
G. móllis *Dec.*
Spártium mòlle Cav.

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G. pàtens *Dec.*
    Spártium pàtens Cav.
G. sessilifòlia *Dec.*
G. casparrìna *Guss.*
G. acanthóclada *Dec.*
G. Lobèlii Dec.
    Spártium erinaceöìdes.
G. parvifolia G. *Don.*
    G. *microphýlla* Moris.
G. Salzmánni Dec.
    G. *umbellàta* Salzm.
G. aspalathöìdes *Lam.*
    Spártium aspalathöìdes Desf.
G. fèrox *Poir.*
    Spártium heterophýllum L'Hérit.
    Spártium fèrox Desf.
G. Cupàni Guss.
    Acàcia triphýlla Cup.
G. infésta *G. Don.*
    Spártium inféstum Guss.
G. hirsúta *Vahl.*
    var. 2 cuspidàta *Dec.*
        3 orientàlis *Dec.*
G. algarbiénsis *Brot.*
    G. *hirsùta* var. δ ? *algarbiénsis* Dec.
G. tricuspidàta *Desf.*
    Spártium tricuspidàtum Cav.
G. gibraltárica, *Dec.*
G. falcàta *Brot.*
G. córsica *Dec.*
    Spártium córsicum Lois.
G. ramosíssima *Poir.*
    Spártium ramosíssimum Desf.
G. cinèrea *Dec.*
    Spártium cinèreum Vill. Prosp.
    G. *scopària* Vill. Dauph.
    G. *flórida* Asso.
G. stylòsa *Spreng.*
    G. *bracteolàta* Willd.
G. multicaúlis Lam.
G. tenuifòlia *Lois.*
G. depréssa *Bieb.*
G. Perreymóndi Lois.
G. pulchélla *Visiani.*
G. tridentàta *L.*
G. álbida *Willd.*
G. micrántha *Ort.*
G. ? heterophýlla *Dec.*
    Cýtisus heterophýllus La Peyr.
G. angulàta *G. Don.*

App. ii. *Half-hardy Species of Genísta.* ✱└┘ ✱┘ - - 588

G. canariénsis *L.* ✱└┘
    Spártium álbicans Cav.
    Cýtisus paniculàtus Lois.
    Cýtisus ramosíssimus Poir.
G. linifòlia *L.* ✱┘ f. 280.
    Spártium linifòlium Desf.
    Cýtisus linifòlius Lam.
    Genistöìdes linifòlia Mœnch.
G. biflòra *Dec.*
    Spártium biflòrum Desf.
G. microphýlla *Dec.*
    Spártium microphýllum Cav.
G. trìdens *Cav.*
G. ægyptìaca *Spreng.*
G. virgàta *Dec.* fig. 281.
    Spártium virgàtum Ait.
    G. *grácilis* Poir.
    Cýtisus tèner Jacq.
G. cuspidòsa *Dec.*
    Spártium cuspidàtum Burch.
G. congésta *Dec.* ✱└┘
    Spártium congéstum Willd.
G. desideràta *Dec.*
G. scándens *Lois.*

VIII. *CY'TISUS Dec.* ♆ ⚘ ⚘┘ ✱└┘ ⚘ ✱ - - - 588
The Cytisus.
    Cýtisus and *Spártium*, *spec.*, L. and Lam., &c.
    Cytise, Fr.
    Bohmenbaum, Ger.

§ i. *Alburnöìdes* Dec. ⚘ - 589

1. álbus *Link.* ⚘ Levant fig. 282. 589
The white Cytisus, *or Portugal Broom.*
    Genísta álba Lam.
    Spártium álbum Desf.
    Spártium multiflòrum Ait.
    Spártium dispérmum Mœnch.
    Genísta multiflòra N. Du Ham.
    Spartium à Fleurs blanches, Fr.
    Weisse Pfriemen, Ger.
        Variety ⚘ - - 590
    2 incarnàtus ⚘

Page
§ ii. *Labúrnum* Dec. ♆ ⚘ - 590

2. *Labúrnum L.* ♆ Europe f. 77. 590
The *common* Laburnum.
    C. *alpìnus* Lam.
    Bean-trefoile Tree, and *Peascod Tree*, Gerard.
    Pea Tree, Scotch.
    Golden Chain.
    L'Aubours, *Faux E'bénier*, *Arbois or Arc Bois*, Fr.
    Gemeine Bohnenbaum, Ger.
        Varieties ♆ - - 590
    2 quercifòlium *Hort.* ♆ pl. 78.
        C. L. *incìsum.*
    3 péndulum *Hort.* ♆
    4 fòliis variegàtis ♆
    5 purpuráscens *Hort.* ♆
        C. L. *purpùreum* Hort.
        C. *Adàmi Poir.*
        C. L. *coccíneum* Baum.

3. (*L.*) alpìnus *Mill.* ♆ Alps pl. 79. 591
The Alpine, *or Scotch*, Laburnum.
    C. *Labúrnum β* Ait.
    C. *angustifòlium* Mœnch.
    C. *Labúrnum var. latifòlium* Pers.
    Cystise des Alpes, *l'Aubours*, Fr.
    Alpen Bohnenbaum, Ger.
    Maggio pendolino, Ital.
        Variety ♆ - - 591
    2 péndulus ♆ pl. 80.

4. nígricans *L.* ⚘ France f. 283. 593
The black Cytisus.

5. sessilifòlius *L.* ⚘ Fr. f. 284, 285. 594
The sessile-leaved Cytisus.

6. triflòrus *L'Hérit.* ⚘ South Europe fig. 286. 594
The three-flowered Cytisus.
    C. *villòsus* Pour.

7. móllis *Willd.* ⚘ . . . . . - - 595
The soft Cytisus.

8. pàtens *L.* ⚘ Portugal - 595
The spreading Cytisus.
    C. *pendulìnus* L. Fil.
    Genísta tomentòsa Poir.
    Spártium pàtens L., not of Cav.

9. grandiflòrus *Dec.* ⚘ Portugal - 595
The great-flowered Cytisus.
    Spártium grandiflòrum Brot.

10. scopàrius *Link.* ⚘ Europe f. 287. 595
The common Broom.
    Spártium scopàrium L.
    Genísta scopària Lam., not of Vill.
    Genísta hirsùta Mœnch.
    Genêt à Balais, *Genêt commun*, Fr.
    Gemeine Pfriemen, Ger.
        Varieties ⚘ - - 595
    2 álbus *Hort.*
    3 flòre plèno *Hort.* ⚘

§ iii. *Calycótome* Link. ⚘ ⚘┘ 597

11. spinòsus *Lam.* ⚘ S. Europe - 597
The spiny Cytisus.
    Spártium spinòsum L.

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12. lanígerus *Dec.* ✿ ⊔ S. Europe 597
The wool-bearing Cytisus.
Spártium lanígerum Desf.
Calycótome villòsa Link.
Spártium villòsum Brot.
Variety ✿ ⊔ - - 597
2 rígidus *Dec.* ✿ ⊔

§ iv. *Tubocýtisus* Dec. ✿ ✽ ✱ 598
13. leucánthus *Waldst. et Kit.* Austria fig. 288. 598
The white-flowered Cytisus.

14. purpùreus *Scop.* ✱ Austria fig. 289, 290. 598
The purple-*flowered* Cytisus.
Variety ✱ - - 598
2 flòre álbo *Hort.* ✱

15. elongàtus *Waldst. et Kit.* ✿ Hun. 598
The elongated Cytisus.

16. multiflòrus *Lindl.* ✿ Europe 599
The many-flowered Cytisus.
C. *elongàtus* Hort., not of Kit.
C. *elongàtus β multiflòrus* Dec.

17. falcàtus *Waldst. et Kit.* ✿ Austria 599
The sickle-*like-podded* Cytisus.

18. austrìacus *L.* ✿ Austria f. 291. 599
The Austrian Cytisus.

19. supìnus *Jacq.* ✱ Europe f. 292. 599
The supine Cytisus.
C. *lotöìdes* Pour.

20. hirsùtus *L.* ✿ Hungary - 599
The hairy Cytisus.
C. *supìnus* Bertol.
C. *triflòrus* Lam., not of L'Hérit.
C. *Tournefortiànus Lois.*

21. capitàtus *Jacq.* ✿ Italy - 600
The headed-*flowered* Cytisus.
C. *hirsùtus* Lam.
C. *supìnus* L.

22. ciliàtus *Wahl.* ✿ - - 600
The ciliated-*podded* Cytisus.

23. polýtrichus *Bieb.* ✽ Tauria - 600
The many-haired Cytisus.

§ v. *Lotöìdes* Dec. - - 600
24. argénteus *L* ✱ France - 600
The silvery Cytisus.
L*òtus argénteus* Brot.

25. calycìnus *Bieb.* ✱ Caucasus - 601
The *large*-calyxed Cytisus.
C. *pauciflòrus* Willd.

26. nànus *Willd.* ✱ Levant fig. 293. 601
The dwarf Cytisus.

§ vi. *Chronánthus* Dec. ✿ - 601
27. orientàlis *Lois.* ✿ Levant - 601
The Oriental Cytisus.
C. *orientàlis, &c.,* Gerard and Vail. Herb.

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App. i. *Hardy Species of Cýtisus not yet introduced.* - - 601
C. arbòreus *Dec.*
Spártium arbòreum Desf.
Genísta péndula Poir.
C. Wéldeni Visiani.
C. álbidus *Dec.*
C. biflòrus *L'Hérit.*
C. *supìnus* Jacq.
C. *hirsùtus* Gmel.
C. *hirsùtus* and C. *supìnus* Bieb.
C. *macrospérmus* Begs.
var. 2 glàber *L.*
3 subspinéscens.
C. serótinus *Kit. in Litt.*
C. pygmæ'us *Willd.*
C. pónticus *Willd.*
C. *pónticus humifùsus mágno flòre.*
C. canéscens *Lois.*
C. africànus *Lois.*
C. *africànus hirsùtus angustifòlius.*
C. procèrus *Link.*
Spártium procèrum.
C. ? pérsicus *Burm.*
Spártium pérsicum.

App. ii. *Half-hardy Species of Cýtisus.* ❀ ⊔ - - 602
C. prolíferus *L.* ❀ ⊔ fig. 204.
C. pállidus *Poir.*
C. nubígenus *Link.* ❀ ⊔
Spártium nubígenum Ait.
C. *supranùbium* L. Fil.
C. *frágrans* Lam.
C. bracteolàtus *Hort.*
C. tetragonócladus *Hort.*
C. racemòsus *Hort.*

App. iii. *Anticipated hardy and half-hardy Species of Cýtisus.* - 602

IX. ADENOCA'RPUS *Dec.* ✿ ❀ ⊔ 603
The Adenocarpus.
Cýtisus.
Spártium.
Genísta.

1. hispánicus *Dec.* ✿ Spain - 603
The Spanish Adenocarpus.
Cýtisus hispánicus Lam.
Cýtisus Anagýris L'Hérit.

2. intermèdius *Dec.* ✿ Port. f. 295. 603
The intermediate Adenocarpus.
Cýtisus complicàtus Brot.

3. parvifòlius *Dec.* ✿ France f. 296. 603
The small-leaved Adenocarpus.
Cýtisus parvifòlius N. Du Ham.
Cýtisus divaricàtus L'Hérit.
Cýtisus complicàtus Dec.
Spártium complicàtum Lois.

4. telonénsis *Dec.* ✿ Pyren. f. 297. 604
The Toulon Adenocarpus.
Cýtisus telonénsis Lois.
Spártium complicàtum Gouan.

App. i. *Half-hardy Species of Adenocárpus.* ❀ ⊔ - 604
A. frankenioìdes Chois. ❀ ⊔ - - 604
Genísta viscòsa Willd.
A. foliolòsus *Dec.* ❀ ⊔ - - 604
Cýtisus foliolòsus Ait.

X. ONO'NIS *L.* ✿ ✽ ✽ ⊔ ✽ ⊔ ✽ ⊔ 604
The Restharrow.
Anònis and *Nàtrix* Mœnch.
Arrête-bœuf, *Bugrane*, Fr.
Hanechel, Ger.

Page
1. fruticòsa *L.* ♣ Europe fig. 298. 604
The shrubby Restharrow.
Variety ♣ - - 605
2 microphýlla *Dec.* ♣
O. *fruticòsa* Asso.

2. rotundifòlia *L.* ♠ Alps fig. 299. 605
The round-leaved Restharrow.
O. *latifòlia* Asso.
Nátrix rotundifòlia Mœnch.
Variety - - 605
2 aristàta *Dec.*

3. (r.) tribracteàta *Dec.* ♠ Carinthia 605
The three-bracted-*calyxed* Restharrow.
O. *rotundifòlia* L.

4. *Nàtrix* *Dec.* ♠ —┘ Europe fig. 300. 605
The Goat-root Restharrow.
Nàtrix pínguis Mœnch.

5. arenària *Dec.* ♠ —┘ France - 606
The Sand Restharrow.
Anònis spìnis cdrens lùtea minor Magn. Bot.

6. cenísia *L.* ♠ France - - 606
The Mount Cenis Restharrow.
O. *cristàta* Mill. Dict.
Variety ♠ - - 606
2 subaristàta *Dec.* ♠
O. *cenísia* Asso.

7. aragonénsis *Asso.* ♠ Spain - - 606
The Aragon Restharrow.
E. dumòsa Lapeyr.

App. i. *Other suffruticose Species of Onònis.*
♧ └┘ ♧ —┘ - - 606
O. pedunculàris *Lindl.* fig. 301.
O. críspa *L.*
O. hispánica
O. vaginàlis *L.* ♧ —┘
O. arachnöídea *Lapeyr.*
O. longifòlia *Willd.* ♧ └┘
O. falcàta *Willd.* ♧ —┘
O. ramosíssima *Desf.* ♧ —┘
O. tridentàta *L.* ♧ └┘
O. angustifòlia *Lam.* ♧ —┘
O. fœ'tida *Schousb.*

XI. AMO'RPHA *L.* ♣ ♣ —┘ ♠ —┘ 606
The Amorpha, *or Bastard Indigo.*
Bonafídia Neck.

1. fruticòsa *L.* ♣ N. America f. 302. 607
The shrubby Amorpha.
Wild Indigo.
Faux Indigo, Fr.
Strauchartiger Unform, Ger.
Varieties ♣ - - - 607
2 angustifòlia *Pursh.* ♣
3 emarginàta *Pursh.* ♣
4 Lewís*ii* Lodd. Cat. ♣
5 cærùlea *Lodd. Cat.* ♣

2. (f.) glàbra *Desf.* ♣ —┘ N. America 607
The glabrous Amorpha.

3. (f.) nàna *Nutt.* ♠ —┘ N. America 607
The dwarf Amorpha.
A. microphýlla Pursh.

4. (f.) fràgrans *Swt.* ♣ North America fig. 303. 608
The fragrant Amorpha.
A. nàna Sims.

5. (f.) cròceo-lanàta *Wats.* ♣ —┘ North America - fig. 304. 608
The Saffron-coloured woolly Amorpha.

6. (f.) canéscens *Nutt.* ♣ —┘ N. Am. 608
The canescent Amorpha.
? *A. pubéscens* Pursh.

XII. ROBI'N*IA* L. Ŧ ♣ ♠ 609
The Robinia, *or Locust Tree.*
Pseudacàcia.
Robinier, Fr.
Robinie, Ger.

1. Pseùd-*Acàcia* *Lin.* North America pl. 81, 82. fig. 305. 609.
The *common* Robinia, *or* False Acacia
Æschynómene Pseudacàcia Roxb.
Pseudacàcia odoràta Mœnch.
Locust Tree, Amer.
The Bastard Acacia.
Acacia blanc, Carouge des Américains, Fr.
Gemeine Acacia, Schotendorn, Ger.
Varieties Ŧ - - 609
2 flòre lùteo *Dumont.* Ŧ
3 inérmis *Dec.* Ŧ
4 críspa *Dec.* Ŧ
5 umbraculífera *Dec.* Ŧ pl. 83.
R. *inérmis* Dum.
6 tortuòsa *Dec.* Ŧ pl. 84.
7 *sophoræ*fòlia *Lodd. Cat.* Ŧ
8 amorphæfòlia *Lk.* Ŧ
9 stricta *Lk.* Ŧ
10 procèra *Lodd. Cat.* Ŧ
11 péndula *Ort.* Ŧ
12 monstròsa *Lodd. Cat.* Ŧ
13 macrophýlla *Lodd. Cat.* Ŧ
14 microphýlla *Lodd. Cat.* Ŧ
R. *angustifòlia* Hort.
15 spectábilis *Dum.* Ŧ
16 latisíliqua *Prince's Cat.* Ŧ

2. [P.] viscòsa *Vent.* Ŧ North America pl. 85. fig. 336. 626
The clammy-*barked* Robinia.
R. *glutinòsa* Curt.
R. *montàna* Bartram.
The Rose-flowering Locust.

3. dùbia *Fouc.* Ŧ Hybrid. - - 627
The doubtful Robinia.
R. hýbrida Audib.
R. ambígua Poir.
? *R. echinàta* Mill. Dict.
R. intermèdia Soulange-Bodin.

4. híspida *L.* ♣ N. Amer. f. 307. 627
The hispid Robinia, *or Rose Acacia.*
R. *ròsea* N. Du Ham.
R. *montàna* Bartr. Voy.
Æschynómene híspida Roxb.
Varieties ♣ ♠ - - 628
2 nàna *Dec.* ♠
3 ròsea *Pursh.* ♣
4 macrophýlla *Dec.* ♣ pl. 86.
R. *grandiflòra* Hort.

XIII. *CARAGA'NA* Lam. Ŧ ♣ ♠ 629
The Caragana, *or Siberian Pea Tree.*
Robinia sp. L.

Page
1. arboréscens *Lam.* † Siberia pl. 87. 629
The arborescent Caragana.
Robínia Caragàna *L.*
C. *sibírica* Ray.
Acacie de Sibérie, Robinie de Sibérie, Arbre aux Pois des Russes, Fr.
Sibirische Erbsenbaum, Ger.
- *Gorochoik*, Russ.
Varieties † - - 629
2 inérmis *Hort.* †

2. (a.) *Altagàna* Poir. ⚘ Siber. f. 308. 630
The Altagana Caragana.
Robínia Altagàna *Pall.*
Caragàna *microphýlla* Lam.

3. (a.) microphýlla *Dec.* ⚘ Siberia 630
The small-leaved Caragana.
Robínia microphýlla Pall.
Caragàna Altagàna *var.* Poir.

4. (a.) Redówski Dec. ⸙ Siberia 630
Redowski's Caragana.
Variety ⸙ - - 631
2 præ`cox *Fisch.* ⸙

5. (a.) arenària *Donn* and *Sims.* ⚘ Siberia - - fig. 309. 631
The Sand Caragana.

6. frutéscens *Dec.* ⚘ Russia f. 310. 631
The shrubby Caragana.
Robínia frutéscens L.
C. *digitàta* Lam.
Varieties ⚘ - - 631
1 latifòlia ⚘
2 angustifòlia ⚘

7. (f.) móllis *Bess.* ⸙ Tauria - - 631
The soft Caragana.
Robínia móllis Bieb.
Robínia tomentòsa Fisch.
C. *f. var. móllis* Dec.

8. pygmæ`a *Dec.* ⸙ Siberia f. 311. 631
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Robínia pygmæ`a L.
Variety ⸙ - - 632
2 arenària *Fisch.* ⸙

9. spinòsa *Dec.* ⚘ China - - 632
The spiny Caragana.
Robínia spinòsa L.
Robínia fèrox Pall.
Robínia spinosíssima Laxm.
C. *fèrox* Lam.

10. *t*ragacanthöìdes *Poir.* ⚘ Siberia 632
The Goat's-thorn-like Caragana.
Robínia tragacanthöìdes Pall.
Robínia macrácantha Lodd. Cat.

11. jubàta *Poir.* ⸙ Siberia - 633
The crested Caragana.
Robínia jubàta Pall.

12. grandiflòra *Dec.* ⚘ Georgia - 633
The great-flowered Caragana.
Robínia grandiflòra Bieb.

13. *Chamlàgu* Lam. ⚘ China f. 314. 633
The Chamlagu, *or Chinese*, Caragana.
Robínia Chamlàgu *L'Hérit.*

XIV. HALIMODE′NDRON *Fisch.* ⚘ 634
The Halimodendron, *or Salt Tree.*
Halodéndron Dec., not of Petit Thouars.

1. argénteum *Dec.* ⚘ Siberia f. 315. 634
The silvery-*leaved* Halimodendron.
Robínia Halodéndron L.
Caragàna *argéntea* Lam.
Varieties ⚘ - - 634
1 vulgàre *Dec.* ⚘
2 brachysèma *Dec.* ⚘

2. (a.) subviréscens *Don.* ⚘ Siberia 634
The greenish Halimodendon.
Robínia triflòra L'Herit.
H. argénteum β subviréscens Dec.

XV. CALO′PHACA *Fisch.* ⚘ - 635
The Calophaca.
Cýtisus Pall. and L.
Colùtea Lam.
Adenocárpus Spreng.

1. wolgárica *Fisch.* ⚘ Russia f. 316. 635
The Wolga Calophaca.
Cýtisus nígricans Pall. Itin.
Cýtisus pinnàtus Pall. Fl. Ross.
Cýtisus wolgáricus L.
Colùtea wolgárica Lam.
Adenocárpus wolgénsis Spreng.

XVI. COLU`TEA *R. Br.* ⚘ - 635
The Colutea, *or Bladder Senna.*

1. arboréscens *L.* ⚘ Europe f. 317. 635
The arborescent Colutea.
C. *hirsùta* Roth.

2. (a.) cruénta *Ait.* ⚘ Levant f. 318. 636
The bloody-*flowered* Colutea, *or Oriental Bladder Senna.*
C. *orientàlis* Lam.
C. *sanguínea* Pall.
C. *áptera* Schmidt.
C. *hùmilis* Scop.

3. (a.) mèdia *Willd.* ⚘ Hybrid - - 635
The intermediate Colutea.

4. (a.) haléppica *Lam.* ⚘ Syria - 637
The Aleppo Colutea.
C. *Pocóckii Ait.*
C. *ístria* Mill. Dict.
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5. nepalénsis *Hook.* ⚘ Nepal f. 319. 637
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XVII. *A*STRA′GALUS *Dec.* ⸙ 637
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1. *T*ragacántha *L.* ⸙ S. Europe f. 320. 637
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A. créticus - - fig. 321. 638

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A. aristàtus *L'Hérit.* ⸙ fig. 322.
A. brevifòlius *Lodd.* fig. 323.
A. massiliénsis *Lam.*
? A. *Tragacántha var. with white flowers.*

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App. I. *Suffruticose hardy Species belonging to the Tribe* Lòteæ. ✱ ⋔ ⋔└┘ - 639

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suffruticòsum *Vill.* ⋔ └┘
Lòtus Dorýcnium L.
réctum *Ser.* ⋔
Lòtus réctus L.
latifòlium *Willd.* ⋔
hirsùtum *Ser.* ✱
Lòtus hirsùtus L.
tomentòsum *G. Don.* ✱
D. hirsùtum var. incànum Ser.

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Plagiolòbium *Swt.* ✱└┘ - - - - 639
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pubéscens *Bot. Mag.* ✱└┘
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Scóttia dentàta *R. Br.* ✱└┘ - fig. 328. 640
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Aspálathi *Dec.* ⋔└┘
Spártium créticum.
erinàcea *L.* ⋔_┘
Genístæ Dufour.
spléndens *Willd.*
índica *Lour.*
serícea *Lag.*
heterophýlla *L.*
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Sect. III. *H*EDYSA'REÆ.

XVIII. CORONI'LLA *Neck.* ✻ ✱_┘ 643

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1. E'merus *L.* ✻ S. Europe f. 347. 644
The Scorpion Senna Coronilla.
E'merus màjor Mill. Icon., t. 132. f. 1.
E'merus mìnor Mill. Icon., t. 132. f. 2.
C. pauciflòra Lam.

2. júncea *L.* ✻ France - f. 348. 644
The rushy-*branched* Coronilla.

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C. stipulàris *Lam.* ✱_┘ fig. 349.
C. valentina L.
C. hispánica Mill.
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C. glaúca *L.* ✱_┘ fig. 350.
C. argéntea *L.* ✱_┘
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Hippocrèpis baleárica *Jacq.* ✱_┘ fig. 351, 352. 645
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Desmòdium *Dec.* ✱⊐ - - - 645
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Dicérma élegans *Dec.* ⋔⊐ - - - 646
Hedýsarum elegans Lour.
Zórnia élegans Pers.
Tavernièra Dec. ⋔└┘ - - - 646
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Lespedèza Michx. ✻ - - - 646
frutéscens *Pers.* ✻
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Alhàgi *mannífera* Desf.
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XIX. WISTA`R*IA* Nutt. - 647
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Glýcine sp. L.
Thyrsánthus Elliot.
Kraunhia Rafin.

1. frutéscens *Dec.* N. Amer. f. 359. 647
The shrubby Wistaria.
Glýcine frutéscens L.
A'pios frutéscens Pursh.
Anónymus frutéscens Walt.
Wistària speciòsa Nutt.
Thyrsánthus frutéscens Elliot.
Phaseolöìdes Hort. Angl.
The Kidneybean Tree.

2. chinénsis *Dec.* China f. 360. 648
The Chinese Wistaria.
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Fúdsi Kæmpf.

App. I. *Suffruticose hardy or half-hardy Species of* Phaseòle*æ.* - 649
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L. multiflòrus *Desrous.*
L. álbifrons *Benth.*
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L. versícolor *Swt.*
L. pulchéllus *Swt.*

App. II. *Half-hardy Species of* Phaseòle*æ.* - - 649
Dólichos lignòsus *L.*
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Mucùna macrocárpa*Wall.* ? fig. 363.
Erythrìna Crista-gálli *L.*
*l*aurifòlia *Jacq.*
E. *Crísta-gálli* Bot. Reg.

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XX. GLEDI'TSCH*IA* L. - 650
THE GLEDITSCHIA.
Acàcia sp. Pluk.
Févier, Fr.
Gleditschie, Ger.

1. triacánthos *L.* N. Am. pl. 88, 89. 650
The three-thorned Gleditschia, *or Honey Locust.*
G. triacánthos var. α *polyspérma* Mart.
G. melíloba Walt.
G. spinòsa Du Ham.
Acàcia triacánthos Hort.
Acácia americàna Pluk.
Févier d'Amérique, Fr.
Thorny Acacia, Sweet Locust, United States.
Carouge à Miel, Canada.
Variety - - 650
2 inérmis *Dec.* pl. 90, 91.
G. læ`vis Hort.

2. (t.) monospérma *Walt.* N. America fig. 364. 653
The one-seeded Gleditschia, *or Water Locust.*
G. carolinénsis Lam.
G. aquática Marsh.
G. triacántha Gært.

3. (t.) brachycárpa *Pursh.* North America - - - 653
The short-fruited Gleditschia.
G. triacánthos β Michx.

4. sinénsis *Lam.* China pl. 92. 654
The Chinese Gleditschia.
G. hórrida Willd.
Varieties.
2 inérmis *N. Du Ham.* pl. 93.
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G. javánica Lam.
3 màjor *Hort.* - - 654
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G. h. nàna Hort.
5 purpùrea *Hort.* pl. 95. 654
G. h. purpùrea Lodd.
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5. (s.) macracántha *Desf.* China pl. 96. 654
The long-spined Gleditschia.
G. fèrox Baudr.
Févier à grosses E'pines, Fr.

6. (s.) fèrox *Desf.* China - 655
The ferocious-*prickled* Gleditschia.
G. orientàlis Bosc.
Févier hérissé, Fr.

7. cáspica *Desf.* Caspian - - 655
The Caspian Gleditschia.
G. caspiàna Bosc.
Variety - - 655
2 subviréscens *Hort.*

App. i. *Other Sorts of Gledítsch*ia. 655
G. micracántha *Hort. Soc. Gard.*
G. *Bòqui* Hort. Soc. Gard.
G. præ`cox *Hort. Soc. Gard.*
G. aquática *Lodd.*
G. *monospérma.*
G. orientàlis *Lodd.*
G. *fèrox.*
G. índica *Pers.*

XXI. GYMNO'CLADUS *Lam.* 656
THE GYMNOCLADUS.

1. canadénsis *Lam.* Canada pl. 97, 98. 656
The Canada Gymnocladus, *or Kentucky Coffee Tree.*
Guilandìna dioíca L.
Hyperanthèra dioíca Vahl.
Nicker Tree, and *Stump Tree,* United States.
Bonduc, Chiquier, Fr.
Chicot, Canadian.
Canadischer Schusserbaum, Ger.

XXII. *C*E'RCIS *L.* - - 657
THE JUDAS TREE.
Siliquástrum Tourn.
Gainier, Fr.

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1. *Siliquástrum L.* Ψ Europe pl. 99, 100. 657
The common Judas Tree.
Siliquástrum orbiculàtum Mœnch.
Love Tree.
Gainier commun, *Arbre de Judée*, Fr.
Arbol d'Amor, Span.
Judasbaum, Ger.
Varieties Ψ ✳ - - 658
2 parviflòrum *Dec.* ✳
3 flòre álbido *Hort.* Ψ
4 *ròsea Hort.* Ψ

2. canadénsis *L.* Ψ Canada pl. 101. 659
The Canada Judas Tree.
Siliquástrum cordàtum Mœnch.
Red Bird Tree, Amer.
Bouton Rouge, Fr.
Varieties Ψ - - 659
2 pubéscens *Ph.* Ψ
3 Foreman's new variety. Ψ

App. I. *Half-hardy Species of the Tribe Cassièæ.* ✹⊐ ✹⊔ - 660

Cœsalpin*ia* Ait.
lebbeck*öides* Dec.
C*àdia* vària *L'Hérit.* ✹ ⊐
Zuccágn*ia* Cav.
punctàta *Cav.*
Ceratònia Síliqua *L.* ⚲ ⊔ fig. 365, 366.
Castanospérmum austràle *Cunningham.*
Cássia *L.*
Barclay*àna* Swt. ✹ ⊔ fig. 367.
austràlis *Hook.* ✹ ⊔ fig. 368.
lanceolàta ✳ ⊐
obovàta
Chamæfístula *Don's Mill.*
corymbòsa *G. Don.* ✹ ⊔ fig. 370.
Cássia corymbòsa Lam.
Schòt*ia* stipulàta *Ait.* ✹ ⊐
alàta *Thunb.* ✹ ⊔
latifòlia *Jacq.* ✹ ⊐ fig. 369.

App. I. *Other half-hardy ligneous Species of the Order Leguminàceæ.* - 661

§ i. *Dalbergièæ.* - - 661

Dérris sericea *G. Don.*
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§ ii. *Mimòseæ.* - - 661
⚲⊐ ⚲⊔ ✳⌟ ✹⊐ ✹⊔

*Pros*òpis *L.*
glandulòsa *Torrey*
Siliquástrum *Dec.*
Lagonýchium Stephani*ànum* Bieb. Supp. ✳ ⌟
Acàcia Stephaniàna Bieb. Fl. Taur.
Mimòsa micrántha Vahl.
Acàcia Neck ⚲ ☐ ⚲ ⊔ ✹ ⊐ ✹ ⊔

1. *Phyllodíneæ.* ✹⊐ ✹⊔ - 662

A. alàta *R. Br.* ✹ ⊔ fig. 371.
A. armàta *R. Br.* ✹ ⊔ fig. 372.
A. junipérina *Willd.* ✹ ⊔ fig. 373.
Mimòsa junipérina Vent.
Mimòsa ulicifolia Wendl.
A. *verticillàta* Sieb.
A. diffùsa *Ker.* ✹ ⊔ fig. 374, 375.
A. *prostràta* Lodd
A. strícta *Willd.* ✹ ⊔ fig. 376, 377.
A. laurifòlia Willd. ✹ ⊐
Mimòsa simplicifòlia L.
A. melanóxylon *R. Br.* ✹ ⊔ fig. 378, 379.
A. heterophýlla *Willd.* ✹ ⊔
Mimòsa heterophýlla Lam.
A. myrtifòlia *Willd.* ✹ ⊔ fig. 380.
Mimòsa m*yrtifòlia* Sm.
A. *lanàta* Lodd.
A. suavèolens *Willd.* ✹ ⊔ fig. 381.
Mimòsa suavèolens Sm.
A. Oxýcedrus *Sieb.* ✹ ⊔ fig. 382, 383.
A. *taxifòlia* Lodd.
A. verticillàta *Willd.* ✹ ⊔ fig. 384.
var. 3 latifòlia *Dec.* ✹ ⊔

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2. *Conjugàto-pinnàtæ.* ✹⊔ ✹⊐ - 664
A. gummífera *Willd.* ⚲ ⊔
A. coronillæfòlia *Desf.* ✹ ⊐
A. pulchélla *R. Br.* ✹ ⊔ fig. 385, 386.
A. détinens *Burch.* ✹ ⊔
A. viridiràmis *Burch.*

3. *Spiciflòræ.* ⚲⊔ ✹⊔ - - 664

A. lophántha *Willd.* ✹ ⊔ fig. 387.
A. lophántha *Willd.* ✹ ⊔ fig. 387.
Mimòsa élegans Bot. Rep.
A. càfra *Willd.* ⚲ ⊔
Mimosa càfra Thunb.
A. álbida *Delil.* ? ✹ ⊔

4. *Globiflòræ.* ⚲⊔ - - 665

A. farnesiàna *Willd.* ⚲ ⌟ fig. 388.
Mimòsa farnesiàna L.
Mmòsa scorpiöides Forsk.
Gazia, Ital.
A. Cavèn*ia* Hook.
Mimòsa Cavènia Moll.
A. nígricans *R. Br.* ✹ ⊔ fig. 389, 390.
Mimòsa nígricans Labill.
A. strigòsa *Link.* ✹ ⊔
A. *ciliàta* R. Br.
A. glaúca *Willd.* ✹ ⊔
Mimòsa glaúca L.
A. Lamberti*àna* D. Don. ✹ ⊔
A. díscolor *Willd.* ✹ ⊔
A. angulàta *Desf.* ⚲ ⊔
A. pubéscens *R.Br.* ✹ ⊔

A. Julibríssin Willd. Ψ fig. 391.
Mimòsa Julibríssin *Scop.*
Mimòsa arbòrea Forsk.

A. decúrrens *Willd.* ✹ ⊔
Mimosa decúrrens Vent.
A. mollíssima *Willd.* ✹ ⊐ fig. 392, 393.
A. *decúrrens var. β móllis* Bot. Reg.
A. *móllis* Swt.

A. dealbàta *Link.* ✹ ⊔ pl. 102.
A. *affi`nis* Hor.
The Black Wattle Mimosa, Van Diemen's Land.
A. móllis *Wall.* ✹ ⊐

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Rosàceæ Dec. - 670

Ψ Ψ⌟ ⚲ ⚲⊔ ⚲⌟ ✳ ✹ ✹⊔ ✹⌟
⁂ ⁂⌟ ⁂ ʅ ʅ⌟ ʅ ⚘ ⚘ ⚘⊔

Sect. I. *A*MYGDA`LEÆ *Juss.* - 671. 673

I. *A*MY'GDALUS *Tourn.* Ψ ✳ 671. 673
THE ALMOND TREE.
Amygdalóphora Neck.
Amandier, Fr.
Mandelbaum, Ger.

1. nàna *L.* ✳ Russia fig. 394, 395. 673
The dwarf, *or shrubby*, Almond.
P*rùnus inérmis* Gmel.
A. *nàna var. α vulgàris* Dec.
Zwerchemandel, Ger.
Varieties. ✳
2 geórgica *Dec.* ✳ - - 673
The Georgian dwarf Almond.
A. *geórgica* Desf.
3 campéstris *Ser.* - - 674
The field dwarf Almond.
A. *campéstris* Bess.
A. *Besser*iàna *Schott.*
4 incàna *Pall.* ✳ - - 674
The hoary-*leaved* dwarf Almond.
? 5 sibírica *Lodd.* ✳ - - 674
The Siberian Almond.

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2. commùnis *L.* ♆ Mauritania pl. 103. 674
The common Almond Tree.
Varieties. ⚘
1 amàra *Dec.* ♆ - - 674
The bitter-*kerneled* common Almond Tree.
Amandier amer, Fr.
Gemeine Mandelbaum, Ger.
2 dúlcis *Dec.* ♆ - - 675
The sweet-*kerneled* common Almond Tree.
Amandier à petits Fruits, Amande douce, Fr.
Süsse Mandel, Ger.
3 flòre plèno *Baum. Cat.* ♆ - 675
4 fòliis variegàtis *Baum. Cat.* ♆ 675
5 frágilis *Ser.* ♆ - - 675
The brittle-*shelled* common Almond Tree.
A. *frágilis* Hell.
Amandier des Dames, N. Du Ham.
Coque molle, Fr.
Abellan, Provence.
6 macrocárpa *Ser.* ♆ - 675
The long-fruited common Almond Tree.
Amandier à gros Fruits, N. Du Ham.
Amandier Sultane, Amandier des Dames, Amandier Pistache, Fr.
7 persicöìdes *Ser.* ♆ - 675
The Peach-like-*leaved* common Almond Tree.
Other Varieties - - 675

3. orientàlis *Ait.* ⚘ Levant - - 679
The Eastern Almond Tree.
A. *argéntea* Lam.

App. i. *Other Species of* Amýgdalus. ♆ ⚘ 679
A. Tournefórt*ii* Bosc. ⚘
A. cochinchinénsis *Lour.* ♆
A. microphýlla *H. B. et Kunth.* ⚘

II. *PE'RSICA* *Tourn.* ♆ ⚘ 671. 679
THE PEACH TREE.
Amýgdalus sp. L.
Trichocárpus Neck.
Pêcher, Fr.
Pfirschenbaum, Ger.

1. vulgàris *Mill.* ♆ Persia pl. 104. 680
The common Peach Tree.
Amýgdalus Pérsica L.
Pêche duveteuse, Fr.
Pfirsche, Ger.
Varieties. ♆ ⚘
1 The *freestone* common Peach Tree. ♆
Pêche, Fr.
2 The *clingstone* common Peach Tree. ♆
Pavie, Fr.
3 flòre plèno *Hort.* ♆
The double-flowering common Peach.
4 álba *Lindl.* ⚘
The white-*flowering* common Peach.
5 fòliis variegàtis *Hort.* ♆
The variegated-*leaved* Peach Tree.
6 compréssa *Hort.* ⚘ f. 397.
The flat Peach *of China.*

2. (v.) læ'vis *Dec.* ♆ Persia - 680
The smooth-*skinned* Peach, *or Nectarine Tree.*
Amýgdalus Pérsica Lam.
Amýgdalus Pérsica Nectarìna Ait.
Brugnon, Pêche lisse, Fr.
Varieties ♆ - - - 680
1 The freestone Nectarine. ♆
Pêche lisse, Fr.
2 The clingstone Nectarine. ♆
Brugnon, Fr.

III. *ARMENI'ACA* *Tourn.* ♆ 671. 681
THE APRICOT.
Prùnus sp. L. and others.
Abricotier, Fr.
Aprikosenbaum, Ger.

1. vulgàris *Lam.* ♆ Asia pl. 105. 682
The common Apricot Tree.
Prùnus Armenìaca L.
Varieties ♆ - - 682
1 ovalifòlia *Ser.* ♆ fig. 398.
The oval-leaved common Apricot Tree.
2 cordifòlia *Ser.* ♆ fig. 399.
The heart-shaped-leaved common Apricot Tree.
3 fòliis variegàtis *Hort.* ♆
The variegated-leaved common Apricot Tree.
4 flòre plèno *Hort.* ♆
The double-blossomed common Apricot Tree.

2. dasycárpa *Pers.* ♆ f. 400, 401. 683
The thick-fruited Apricot Tree.
A. *atropurpùrea* Lois.
Prùnus dasycárpa Ehrh.
Prùnus Armenìaca nìger Desf.
The black Apricot.
Variety ♆ - - 683
2 *persicifòlia* *Lois.* ♆ f. 402
The Peach-leaved thick-fruited Apricot Tree.

3. (v.) sibírica *Pers.* ♆ Siberia pl. 106. 683
The Siberian Apricot Tree.
Prùnus sibírica L.

4. (v.) brigantìaca *Pers.* ♆ Fr. f. 403. 684
The Briançon Apricot Tree.
Prùnus brigantìaca Vill.

IV. *PRU'NUS* *Tourn.* ♆ ⚘ 671. 684
THE PLUM.
Prunóphora Neck.

1. spinòsa *L.* ♆ Europe pl. 107. 684
The spiny Plum Tree, *or common Sloe Thorn.*
P. *sylvéstris* Fuch.
Blackthorn.
Prunier épineux, Prunellier, E'pine noire, Mère-du-Bois, Fr.
Schleadorn, Schlen Pflaum, Ger.
Varieties ♆ - - 685
1 vulgàris *Ser.* ♆
The common Sloe Thorn.
P. *spinòsa* Lois.
2 fòliis variegàtis *Ser.* ♆
The variegated-leaved Sloe Thorn.
3 microcárpa *Wallr.* ♆
The small-fruited Sloe Thorn.
4 macrocárpa *Wallr.* ♆
The large-fruited Sloe Thorn.
5 ovàta *Ser.* ♆
The ovate-*leaved* Sloe Thorn.
6 flòre plèno ♆
The double-flowered Sloe Thorn.

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2. insitítia *L.* 🌳 Barbary pl. 108. 687
The engrafted Plum Tree, *or Bullace Plum.*
P. *sylvéstris præ̀cox áltior* Tourn.
P. *sylvéstris màjor* Ray.
Prunier sauvage, Fr.
Kirschen Pflaume, Ger.
Varieties 🌳 - - 687
1 frúctu nìgro *Hort.* 🌳
The black-fruited, *or common, Bullace.*
2 frúctu lùteo-álbo *Hort.* 🌳
The yellowish-white-fruited *Bullace.*
3 frúctu rùbro *Hort.* 🌳
The red-fruited *Bullace.*
4 flòre plèno *Hort.* 🌳
The double-flowered *Bullace.*

3. doméstica *L.* 🌳 S. Europe - 687
The domestic *cultivated* Plum Tree.
P. *sativa* Fuchs and Ray.
Gemeine Pflaume, Ger.
Varieties 🌳 - - 688
2 flòre plèno *Hort.* 🌳
The double-blossomed Plum.
3 fòliis variegàtis *Hort.* 🌳
The variegated-leaved Plum.
4 myrobálana *L.* 🌳 pl. 109.
The Myrobalan, *or Cherry*, Plum.
P. *Myróbalan* Du Ham.
P. *mirobálana* Lois.
P. *cerasífera* Ehrh.
Prunier Myrobalan, Cerisette, Fr.
Kirschpflaume, Ger.
Subvariety. 🌳
5 m. fòliis variegàtis *N. Du Ham.*
The variegated-leaved Myrobalan, *or Cherry*, Plum.
6 armeniòides *Ser.* 🌳
The Apricot-like Plum, *or Drap d'Or.*

4. cándicans *Balb.* 🌿 ..... f. 404, 405. 690
The whitish-*leaved* Plum Tree.

5. *Cocomílla* Tenore. 🌿 Calabria - 691
The Cocomilla Plum Tree.

6. marítima *Wangenheim.* 🌿 North America - - 691
The sea-side-*inhabiting* Plum Tree.

7. pubéscens *Poir.* 🌿 ..... - 691
The pubescent-*leaved* Plum Tree.

8. ? divaricàta *Led.* 🌿 Caucasus - 691
The divaricate (? *branched*) Plum Tree.

App. i. *Other Species of* Prùnus. 🌳 🌿 691
P. microcárpa *Meyer.* 🌿
P. tomentòsa *Thunb.* 🌱
P. chinénsis *Blum.* 🌳
Other Species.

V. CE'RASUS *Juss.* 🌳 🌳 🌱 🌿 🌿 🌿 672. 692
THE CHERRY.
Cérasus and *Laurocérasus* Tourn.
Prùnus sp. L.
Cerisier, Fr.
Kirsche, Ger.

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§ i. *Cerasóphora* Dec. 🌳 🌿 ✱ - 692
The Cherries cultivated in Gardens.

1. sylvéstris *Bauh.* and *Ray.* 🌳 Europe pl. 110, 111. 693
The wild *black-fruited* Cherry Tree.
C. *àvium* Mœnch.
C. *nìgra* Mill. Dict., not of Ait.
Prùnus àvium L.
Prùnus àvium var. α *et* β Willd.
Prùnus nigricans and *Prùnus vària* Ehrh.
Gean, Bigarreau, Corone, Coroon, Small Black, Black Hertfordshire, Black Heart, Black Mazzard,
The Merry Tree of the Cheshire peasants,
The Merries in Suffolk.
Mérisier, Mérise grosse noire, Guignier, Bigarreautier, Heaumier, Fr.
Süsse Kirsche, Ger.
Varieties - - 693
1 Mérisiers, or Merries. 🌳
2 Guigniers, or Geans. 🌳
C. *Juliàna Dec.*
C. *decumàna* Delauny.
3 Heaumiers. 🌳
The Helmet-shaped Cherries.
C. *Juliàna var.* heaumiàna *Dec.*
Variety of this race used for ornamental purposes:
duràcina 2 flòre plèno *Hort.* 🌳
The double-flowered wild black Cherry.
Mérisier Renunculier, Fr.
4 Bigarreautiers. 🌳
The Bigarreau, or hard-fleshed Cherries.
C. *durácina* Dec.

2. vulgàris *Mill.* 🌳 Europe pl. 112. 693
The Common Cherry Tree.
Prùnus Cérasus L.
C. *horténsis* Pers.
C. caproniàna *Dec.*
P. *austèra* and P. *ácida* Ehrh.
Cherry, Kentish or Flemish Cherry, Morello, May Duke.
Cerise de Montmorency, Cerise de Paris, Cerise à Fruits ronds, Cerise du Nord, Cerisier, Griottier, Fr.
Saure Kirsche, Ger.
Varieties 🌳 - - 694
2 flòre semiplèno *Hort.* 🌳
The semidouble-flowered common Cherry.
3 flòre plèno *Hort.* 🌳
The double-flowered common Cherry.
4 persiciflòra *Hort.* 🌳
The Peach-blossomed common Cherry.
5 fòliis variegàtis *Hort.* 🌳
The variegated-leaved common Cherry.

3. (v.) semperflòrens *Dec.* 🌳 ..... pl. 113. 701
The ever-flowering Cherry Tree.
Prùnus semperflòrens Ehrh.
Prùnus serótina Roth.
The weeping Cherry, The Allsaints Cherry.
Cerise de la Toussaint, Cerise de St. Martin, Cerise tardive, Fr.

4. serrulàta *G. Don.* 🌳 China f. 406. 701
The serrulated-*leaved* Cherry Tree.
Prùnus serrulàta Lindl.
The double Chinese Cherry.
Yung-To, Chinese.

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5. Pseùdo-Cérasus *Lindl.* ‡ China fig. 407. 701
The False Cherry Tree.
Prùnus Pseùdo-Cérasus Lindl.
Prùnus paniculàta Ker. not of Thunb.

6. Chamæcérasus *Lois.* ✻ Sib. f. 408. 702
The Ground Cherry Tree, *or Siberian Cherry.*
C. *intermèdia* Lois.
Prùnus intermèdia Poir.
Prùnus fruticòsa Pall.
C. *pùmila* C. Bauh.
Chamæcérasus fruticòsa Pers.

7. prostràta *Ser.* ⁎ Levant f. 409. 702
The prostrate Cherry Tree.
Prùnus prostràta Lab.
Amýgdalus incàna Pall.
Prùnus incàna Steven.

8. persicifòlia *Lois.* ‡ N. America 702
The Peach-tree-leaved Cherry Tree.
Prùnus persicifòlia Desf.

9. boreàlis *Michx.* ‡ N. Amer. f. 410. 703
The North *American* Cherry Tree.
Prùnus boreàlis Poir.
The Northern Choke Cherry, Amer.

10. pùmila *Michx.* ⁎ N. America 703
The dwarf Cherry Tree.
Prùnus pùmila L.
C. *glaúca* Mœnch.
Ragouminier, Nega, Menel du Canada, Fr.

11. depréssa *Ph.* ⁎ North America 704
The depressed, *or prostrate*, Cherry Tree.
C. *pùmila* Michx., not the *Prùnus pùmila* L.
Prùnus Susquehànæ Willd.

12. pygmæ`a *Lois.* ✻ North America 704
The Pygmy Cherry Tree.
Prùnus pygmæ`a Willd.

13. nìgra *Lois.* ‡ Canada f. 411, 412. 704
The black Cherry Tree.
Prùnus nìgra Ait.
Prùnus americàna Darlington.

14. hyemàlis *Michx.* ✻ N. America 704
The winter Cherry Tree.
Prùnus hyemàlis Michx.
The Black Choke Cherry.

15. chícasa *Michx.* ✻ N. America 705
The Chicasaw Cherry Tree.
Prùnus chícasa Pursh.
Prùnus insitítia Walt.
Chicasaw Plum, in Carolina.

16. pubéscens *Ser.* ✻ N. America 705
The pubescent Cherry Tree.
Prùnus pubéscens Pursh.
Prùnus sphærocárpa Michx., not of Swartz.

17. pennsylvánica *Lois.* ‡ N. America 705
The Pennsylvanian Cherry Tree.
Prùnus pennsylvánica L.
Prùnus lanceolàta Willd.

18. japónica *Lois.* ✻ Japan f. 413, 414. 705
The Japan Cherry Tree.
Prùnus japónica Thunb.
Prùnus sinénsis Pers.
Variety ✻ - - 706
2 múltiplex *Ser.* ✻ figs. 415, 416.
Amýgdalus pùmila L.

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19. sinénsis *G. Don.* ✻ China f. 417. 706
The Chinese Cherry.
Prunus japónica Ker.

20. salícina *G. Don.* ✻ China - 707
The Willow-*leaved* Cherry Tree.
Prùnus salicina Lindl.
Ching-Cho-Lee, or Tung-Choh-Lee, Chinese.

Species belonging to the preceding Subdivision, not yet introduced. ‡ ✻ ⁎ 707
C. Phóshia Hamilt. ‡
Prùnus cerasöìdes D. Don.
C. Púddum Roxb. ‡
C. glandulòsa *Lois.* ✻
C. áspera *Lois.* ✻
C. incìsa *Lois.* ✻
C. hùmilis *Moris.* ⁎

§ ii. *Pàdi vèri* Ser. ‡ ‡ ⊥ - 707

21. *Mahàleb* Mill. ‡ South Europe pl. 114. 707
The Mahàleb, *or perfumed*, Cherry Tree.
Prùnus Mahàleb *L.*
Bois de Sainte Lucie, Prunier odorant, Fr.
Varieties ‡ - - 707
1 fòliis variegàtis *Hort.* ‡
2 frúctu flàvo *Hort.* ‡
3 latifòlium *Hort.* ‡

22. Pàdus *Dec.* ‡ Europe pl. 115. 709
The Bird Cherry Tree.
Prùnus Pàdus L.
Bird Cherry, Fowl Cherry.
Hag-berry, Scot.
Cerisier à Grappes, Mérisier à Grappes, Laurier-Putier or Putiet, Faux Bois de Ste. Lucie, Fr.
Hag-bier, Swedish.
Traubeden Kirsche, Ger.
Varieties ‡ - - 709
1 vulgàris *Ser.* ‡
C. *Pàdus* Dec.
2 parviflòra *Ser.* ‡
3 rùbra *Ser.* ‡
C. *Pàdus frúctu rùbro* Dec.
4 bracteòsa *Ser.* ‡ - - 702

23. virginiàna *Michx.* ‡ Virg. f. 418. 710
The Virginian Bird Cherry Tree.
Prùnus rùbra Ait.
Prùnus argùta Bigelow.
Wild Cherry Tree, Amer.

24. (v.) serótina *Lois.* ‡ North America pl. 116. fig. 419. 712
The late-*flowering, or American,* Bird Cherry Tree.
Prùnus serótina Willd.
Prùnus virginiàna Mill.
Variety ‡ - - 712
2 retùsa *Ser.* ‡

25. (v.) *Capóllin* Dec. ‡ Mexico fig. 420. 713
The Capollin Bird Cherry Tree.
Prùnus virginiàna Flora Mexic.

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26. (v.) canadénsis *Lois.* Canada - 713
The Canadian Bird Cherry Tree.
Prùnus canadénsis Willd.

27. nepalénsis *Ser.* Nepal - 713
The Nepal Bird Cherry Tree.

Species of Bird Cherry Trees which have not yet been introduced. - - 714

C. paniculàta *Lois.*
Prùnus paniculàta Thunb.
C. acuminàta *Wall.*
C. móllis *Dougl.*
C. emarginàta *Dougl.*
C. capricìda *G. Don.*
The Goat-killing Bird Cherry Tree.
Prùnus capricìda Wall.
Prùnus undulàta Hamilt.
C. *undulàta* Dec.
C. ellíptica *Lois.*
Prùnus ellíptica Thunb.

§ iii. *Lauro-cérasi.* - 714

28. lusitánica *Lois.* Portugal pl. 117, 118. fig. 421. 714
The Portugal *Laurel* Cherry, *or common Portugal Laurel.*
Prùnus lusitánica L.
The Cherry Bay.
Azareiro, Portuguese.

Variety - - 714
2 Híxa *Ser.* - - 714
Prùnus Híxa *Broussonet.*
Prùnus multiglandulòsa Cav.

29. Laurocérasus *Lois.* Asia Minor fig. 422. 716
The Laurel Cherry, *or common Laurel.*
Prùnus Laurocérasus L.
Cherry Bay, Cherry Laurel.
Laurier au Lait, Laurier Amandier, Fr.
Kirsche Lorbeer, Ger.

Varieties - - 716
2 variegàta *Hort.*
3 angustifòlia *Hort.*
Hartògia capénsis Hort.

30. caroliniàna *Michx.* Carolina fig. 423. 720
The Carolina Bird Cherry Tree.
Prùnus caroliniàna Ait.
Prùnus sempervìrens Willd.
Pàdus caroliniàna Mill. Dict.
Wild Orange, Amer.

App. i. *Other Species of Cérasus.* - 721

C. sphærocárpa *Lois.*
Prùnus sphærocárpa Swartz.
C. occidentàlis *Lois.*
Prùnus occidentàlis Swartz.

Sect. II. SPIRÆ`Æ *Dec.* 672. 721

VI. PU'RSH*IA* Dec. - - 672. 721
THE PURSHIA.
Tigàrea *Pursh, not of Aublet.*

1. tridentàta *Dec.* North America fig. 424, 425. 721
The three-toothed-*leaved* Purshia.
Tigàrea *tridentàta* Pursh.

VII. KE'R*RIA* Dec. - 672. 722
THE KERRIA.
Rùbus L.
Córchorus Thunb.
Spiræ`a Camb.

1. japónica *Dec.* Japan fig. 426. 722
The Japan Kerria.
Rùbus japónicus L.
Córchorus japónicus Thunb.
Spiræ`a japónica Camb.

VIII. *S*PIRÆ`A *L.* - 672. 722
THE SPIRÆA.
Spirée, Fr.
Spierstaude, Ger.

§ i. *Physocárpos* Camb. - 723

1. opulifòlia *L.* North America fig. 427, 428. 723
The Guelder-Rose-leaved Spiræa, *or Virginian Guelder Rose.*
Nine Bark, Amer.
Variety - - 723
2 tomentélla *Scr.*

2. capitàta *Ph.* North America - 723
The capitate-*corymbed* Spiræ`a.
S. *opulifòlia var.* Hook.

3. monógyna *Torrey.* N. America 723
The monogynous Spiræa.

§ ii. *Chamæ`dryon* Ser. - 724

4. chamædrifòlia *L.* Siberia f. 429. 724
The Germander-leaved Spiræa.
S. *cantoniénsis* Lour.
Varieties - - 724
1 vulgàris *Camb.*
2 mèdia *Pursh.*
3 oblongifòlia *Camb.*
S. *oblongifòlia* Waldst.
4 subracemòsa *Ser.*
5 incìsa *Hort.*
? S. *incìsa* Thunb.

5. (*c.*) ulmifòlia *Scop.* Carinthia fig. 430. 724
The Elm-leaved Spiræa.
S. *chamædrifòlia* Jacq.
Variety - - 725
2 phyllántha *Ser.*

6. (*c.*) flexuòsa *Fisch.* ..... - 725
The flexible-*branched* Spiræa.
S. *alpìna* Hort.

7. (*c.*) cratægifòlia *Lk.* ..... - 725
The Cratægus-leaved Spiræa.

8. (*c.*) betulæfòlia *Pall.* N. Amer. 725
The Birch-leaved Spiræa.
? S. *corymbòsa* Raf.
? S. *cratægifòlia* Lk.

9. càna *Waldst. et Kit.* Austria - 725
The hoary-*leaved* Spiræa.

10. trilobàta *L.* - - fig. 431. 725
The three-lobed-*leaved* Spiræa.
S. *triloba* Don's Mill.

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11. alpìna *Pall.* Siberia fig. 432. 726
The *Siberian* alpine Spiræa.

12. *h*ypericifòlia *Dec.* Europe and America - - fig. 433. 726
The Hypericum-leaved Spiræa.
Hypéricum frùtex Hort.
Italian May.

Varieties.
1 uralénsis *Ser.* - - 726
S. *crenàta* L.
S. *hypericifòlia* Camb.
2 Plukenet*iàna* Ser. - 726
S. *hypericifòlia* L.
S. h. *var.* β Dec.
3 acùta *Ser.* - fig. 434. 727
S. *acutifòlia* Willd.
S. *sibírica* Hort.
S. *ambígua* Pall.
4 crenàta *Ser.* - fig. 435. 727
S. *obovàta* Waldst. et Kit.
S. h. γ Dec.
S. *crenàta* L.
5 savránica *Ser.* fig. 536. 727
S. *savránica* Besser.
S. *crenàta* Pall.
S. h. *var.* β *longifòlia* Led.
6 Besser*iàna* Ser. - - 725
S. *crenàta* Besser.
S. *savránica* β Besser*iàna* Don's Mill.

13. (*h.*) *t*halictröìdes *Pall.* Dahuria fig. 437. 727.
The Meadow-Rue-*leaved* Spiræa.
S. *aquilegifòlia* Pall.

14. pikowiénsis *Besser.* Podolia - 728
The Pikow Spiræa.

15. ceanothifòlia *Horn.* ..... - 728
The Ceanothus-leaved Spiræa.

16. corymbòsa *Raf.* Virg. f. 438. 728
The corymbose-*flowering* Spiræa.

Variety - - 728
2 soròria
S. *soròria* Penny.

17. *v*acciniifòlia *D. Don.* Nepal fig. 439. 728
The Vaccinium-leaved Spiræa.

18. béll a *Sims.* Nepal fig. 440. 729
The beautiful Spiræa.

§ iii. *Spiræ̀ria* Ser. - - 729

19. *s*alicifòlia *L.* Siberia fig. 443. 729
The Willow-leaved Spiræa.
Spiræ̀a frùtex Hort.
Bridewort, Queen's Needle-work.

Varieties - - 729
1 cárnea *Ait.* f. 443.
2 alpéstris *Pall.*
3 paniculàta *Willd.*
L. *álba* Ehrh.
4 latifòlia *Willd.* f. 441.
S. *obovàta* Raf.
S. *carpinifòlia* Willd.
5 grandiflòra f. 442.
S. *grandiflòra* Lodd.

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20. tomentòsa *L.* Canada f. 444. 730
The downy Spiræa.

21. lævigàta *L.* Siberia fig. 445. 731
The smooth-*leaved* Spiræa.
S. *altaicénsis* Laxm.
S. *altàica* Pall.

22. *a*riæfòlia *Smith.* North America fig. 446, 447. 731
The White-Beam-tree-leaved Spiræa.

§ iv. *Sorbària* Ser. - 731

23. *s*orbifòlia *L.* Siberia fig. 448. 731
The Sorbus-leaved Spiræa.
S. *pinnàta* Mœnch.

Variety - - 732
2 alpìna *Pall.*
S. *grandiflòra* Hort. Brit.
S. *Pallàsii Don's Mill.*

App. i. *Species or Varieties of Spiræ̀a not yet introduced.* - 732

S. Blùmei G. Don.
S. *chamædrifòlia japónica* Blume.
S. lanceolàta *Poir*
S. argéntea *Mutis.*
S. Thunbérgii Blume
S. magellánica *Poir.*
S. japónica *Sieb.*
S. Menzièsii Hook.
S. Douglàsii Hook.
S. callòsa *Thunb.*
S. *expánsa* Wall.
S. cæruléscens *Poir.*
S. díscolor *Pursh.*

Sect. III. POTENTI'LLEÆ *Juss.* - 733
(*Dryàdeæ* Vent.)

IX. *R*U'BUS *L.* 672. 733
THE BRAMBLE.
Ronce, Framboisier, Fr.
Himbeere, Brombeerstrauch, Ger.

§ i. *Leaves pinnate, of 3—7 Leaflets.* 735

1. suberéctus *Anders.* Britain 735. 746
The sub-erect Bramble.
R. *nessénsis* Hall.
R. *plicàtus* W. et N.
R. *corylifòlius* Wahlenb.

2. affìnis *Weihe et Nees.* Germany 735
The related Bramble.
R. *collìnus* Dec.
R. *nítidus* Smith
R. *plicàtus* Borrer
} according to Lindley.

Variety - - - 735
2 bracteòsus *Ser.*
R. α, γ, et δ W. et N.

3. físsus *Lindl.* Britain - - 735
The cleft Bramble.
R. *fastigiàtus* Lindl. Synops., ed. 1., not of Weihe and Nees.

4. micránthus *D. Don.* Nepal fig. 449, 450, and 450 a. 735, 736
The small-flowered Bramble.
R. *pauciflòrus* Lindl.

Page
5. dístans *D. Don.* ✿ Nepal - - 736
The distant-*leafleted* Bramble.
R. *pinnàtus* D. Dón.

6. strigòsus *Michx.* ✿ North America 736
The strigose Bramble.
R. *pennsylvánicus* Poir.

7. occidentàlis *L.* ✿ North America fig. 451. 736. 746
The Western, *or American*, Bramble.
R. *virginiànus* Hort.
R. *idæ`us frúctu nìgro* Dill.

8. ásper *D. Don.* ✿ Nepal - - 737
The rough-*branchleted and petioled* Bramble.

9. idæ`us *L.* ✿ Europe, Asia, Africa, and America - - fig. 452. 737. 746
The Mount Ida Bramble, *or common Raspberry.*
R. frambæsiànus *Lam.*
Gemeine Brombeere, Ger.
Batos idaia, Greek.
Raspis, Framboise, Hinde-berry, Gerard.
Varieties ✿ - - 737
With red fruit. ✿
With yellow fruit. ✿
With white fruit. ✿
2 microphýllus *Wallr.* ✿
Varieties cultivated in British Gardens.

§ ii. *Leaves digitate, of 3—5 Leaflets.* ✿ ✱ ⚘ - 738

10. laciniàtus *W.* ✱ .... f. 453. 738. 746
The cut-*leaved* Bramble.

11. cæ`sius *L.* ✱ North-eastern Asia fig. 454. 739. 746
The grey Bramble, *or Dewberry.*
Varieties ✱ - - 739
2 arvénsis *Wallr.* ✱
R. *pseùdo-cæ`sius* Weihe.
3 grandiflòrus *Ser.* ✱
4 parvifòlius *Wallr.* ✱ f. 455.
5 fòliis variegàtis *Hort.* ✱

12. hírtus *W. et K.* ✱ Hungary - 739
The hairy Bramble.
R. *villòsus* Ait.
var. glandulòsus Ser.
R. *glandulòsus* Bell.
R. *hýbridus* Vill.

13. Sprengèl*ii* Weihe. ✱ Germany - 740
Sprengel's Bramble.
R. *vulpìnus* Desf.
R. *villòsus β vulpinus* Ser.

14. dumetòrum *W. et N.* ✱ Britain 740
The Bramble of Thickets.

15. foliolòsus *Don.* ✱ Nepal - - 740
The leaflety Bramble.
R. *microphýllus* Don.

16. flagellàris *Willd.* ✱ North America 740
The Rod-like, *or Runner*, Bramble.
Variety ✱ - - 740
2 inérmis *Ser.* ✱
R. *inérmis* Willd.

Page
17. corylifòlius *Smith.* ✱ Europe fig. 457. 740. 746
The Hazel-leaved Bramble.
R. *vulgàris* W. & N.
R. *nemoròsus* Heyne.
Varieties ✱ - - - 740
2 cànus *Wallr.* ✱
3 glandulòsus *Wallr.* ✱
R. *glandulòsus* Spreng.
British kinds of *R*ùbus which, according to Dr. Lindley, may be associated with *R.* corylifòlius *Sm.*, either as related species, or as varieties:— - - - 741
R. macrophýllus *W. et N.*
The large-leaved Bramble.
R. carpinifòlius *W. et N.*
The Horn beam-leaved Bramble.
R. fúsco-àter *W. et N.*
The brownish-black Bramble.
R. Köhler*i* W. et N.
Kohler's Bramble.
R. glandulòsus *Smith.*
The glandulous-*bristled* Bramble.
R. rùdis *W. et N.*
The rough Bramble.
R. *echinàtus* Lindl.
R. diversifòlius *Lindl. Synops.* ed. 1.
The diverse-leaved Bramble.
R. *diversifòlius* W. et N.

18. (*c.*) agréstis *Waldst. et Kit.* ✱ Hung. 741
The Field Bramble.

19. spectábilis *Ph.* ✿ North America fig. 458. 741. 746
The showy-*flowered* Bramble.
R. ribi*fòlius* Willd.

20. *u*lmifòlius *Schott.* ✱ Gibraltar - 741
The Elm-leaved Bramble.

21. Link*iànus* Ser. ✱ .... - - 742
Link's Bramble.
R. *paniculàtus* Schlecht.

22. fruticòsus *L.* ✱ Europe fig. 459. 742. 746
The shrubby Bramble, *or common Blackberry.*
R. *discolor* and R. *abrùptus* Lindl. Synops., ed. 1.
Varieties ✱ - - 742
2 *pompònius* Ser. ✱ f. 460.
R. *fruticòsus δ* W. et N.
3 taúricus *Hort.* ✱
4 flòre ròsea plèno *Baum. Cat.* ✱
The double pink-flowered Bramble.
5 fòliis variegàtis ✱
The variegated-leaved Bramble.
6 leucocárpus *Ser.* ✱
7 inérmis *Ser.* ✱
8 dalmáticus *Tratt. Ros.* ✱
9 cóncolor *Wallr.* ✱
10 glandulòsus *Wallr.* ✱
11 *r*hamnifòlius *W. & N.* ✱
The Buckthorn-*leaved* Bramble.
R. *cordifòlius* Lindl. ? Weihe.
12 leucóstachys *Schl.* ✱
The white-spiked Bramble.
R. tomentòsus *Weihe.* ✱ - fig. 461. 743
R. fastigiàtus *Weihe.* ✱ - - - 743
R. tiliæfòlius *Weihe.* ✱ - - - 743
R. Ménkii Weihe. ✱ - - - 748
R. Schlechtendáhlii Weihe. ✱ - - 743
R. Schleicheri Weihe. ✱ - - - 743
R. hórridus *Weihe.* ✱ - - - 748
R. nítidus *Weihe.* ✱ - - - 743
R. rubricaúlis *Weihe.* ✱ - - - 743

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23. sánctus *Schreb.* ✱ East - - 744
The holy Bramble.
R. *obtusifòlius* Willd.

24. canéscens *Dec.* ✱ Italy - - 744
The grey Bramble.

25. setòsus *Big.* ✱ North America - 744
The bristly-*stemmed* Bramble.

26. argùtus *Lk.* ✱ North America - 744
The sharp-*toothed-leafleted* Bramble.

27. cuneifòlius *Ph.* ✱ ✱ N. America 745
The wedge-shaped-leafleted Bramble.
R. *parvifòlius* Walt.

28. híspidus *L.* ✱ Canada fig. 462. 745
The hispid-*stemmed* Bramble.
R. *triviàlis* Michx.
R. *procúmbens* Mühl.
R. *flagellàris* Willd.

29. lanuginòsus *Steven.* ? ✱ Caucasus 745
The woolly Bramble.

30. canadénsis *L.* ✱ Canada - - 745
The Canadian Bramble.

§ iii. *Leaves lobed, not pinnate or digitate.* ✱ - - 745

31. odoràtus *L.* ✱ North America fig. 464, 745. 746
The sweet-scented Bramble.
R. *occidentàlis* Hort.
The Virginian Raspberry, The flowering Raspberry.

32. nutkànus *Moc.* ✱ California fig. 464. 745, 746
The Nootka Sound Bramble.
R. *odoràtus* Hort., not of L.

App. i. *Species and Varieties of* Rùbus *best deserving of Cultivation in British Gardens, as ornamental Shrubs* - - 746

App. ii. *Other Sorts of shrubby Rubuses.* ✱ ⌴ ✱ ✱ ⌴ - - 746

R. macropétalus *Doug. MS.* fig. 465.
R. deliciòsus *Torrey*
R. tiliàceus *Smith* ✱
? R. *cordifòlius* D. Don
R. acuminàtus *Smith*
R. *betùlinus* D. Don
R. refléxus *Ker.* ✱ ⌴ fig. 466.
R. *moluccànus* Ait.
R. rosæfòlius *Smith* ✱ ⌴
R. r. coronàrius *Sims* ✱ ⌴ fig. 467.

X. POTENTI'LLA *L.* ✱ ✱ - 747
The Potentilla, *or Shrubby Cinquefoil.*

1. fruticòsa *L.* ✱ Europe fig. 468. 747
The Shrubby Potentilla, *or Cinquefoil.*
Varieties. ✱ ✱
2 dahùrica *Ser.* ✱ - 747
P. *dahurica* Nestl.
P. *fruticòsa β* Lehm.
3 tenuiloba ✱ - fig. 469. 748
P. *fruticòsa β* Nestl.
P. *floribúnda* Pursh.
P. *tenuifòlia* Schlechtend.

2. glàbra *Lodd.* ✱ Siberia fig. 470. 748
The glabrous Potentilla.
P. *fruticòsa álba* Busch.

3. Salesòvi*i* Steph. ✱ Siberia - 748
Salesovius's Potentilla.

Sect. IV. *Ro'seæ Dec.* - 672. 748

XI. RO'SA *Tourn.* ✱ ✱ ✱ ✱ ✱ ✱ ⌴ ✱ ✱ ✱ - - 672. 748
The Rose Tree.
Rhodóphora Neck.
Rosier, Fr.
Rosenstock, Ger.
Roozeboom, Dutch.
Rosajo, Ital.
Rosal, Spanish.
Roseira, Portuguese.

§ i. *Feròces* Lindl. ✱ - - 750

1. fèrox *Lawr.* ✱ Caucasus fig. 471. 750
The fiercely-*prickled* Rose.
R. *kamtschática* Red.
R. *kamschática β fèrox* Ser.
R. *echinàta* Dupont.
Variety ✱ - - 750
2 nìtens *Lindl.* ✱

2. (f.) kamtschática *Vent.* ✱ Kamtschatka fig. 472. 750
The Kamtschatka Rose.

§ ii. *Bracteàtæ.* ✱ - - 750

3. bracteàta *Wendl.* ✱ China f. 473. 750
The *large*-bracted Rose.
Lord Macartney's Rose.
Varieties ✱ - - 751
2 scabricaúlis *Lindl.* ✱
R. b. vèra *Lodd.* ✱
R. b. flòre plèno *Lodd.* ✱

4. (b.) microphýlla *Roxb.* ✱ China fig. 474. 751
The small-leafleted Rose.
Hoi-tong-hong, Chinese.

5. (b.) involucràta *Roxb.* ✱ Nep. f. 475. 751
The involucred-*corymbed* Rose.
R. *Lindleyàna Tratt. Ros.*
R. *palústris* Buchan.

§ iii. *Cinnamòmeæ* Lindl. ✱ ✱ - 751

6. lùcida *Ehrh.* ✱ N. America f. 476. 752
The shining-*leaved* Rose.
R. *rùbra lùcida* Rossig.
Rose Turneps.
Rosier à Feuilles de Frêne, Fr.

7. (l.) nítida *W.* ✱ Newfoundl. f. 477. 752
The glossy-*leaved* Rose.
R. *Redutèa rufèscens* Thory.
The dwarf Labrador Rose.

8. (l.) *Ràpa Bosc.* ✱ N. Amer. f. 478. 752
The Turnip-*fruited* Rose.
R. *túrgida* Pers.
R. *fraxinifòlia* Dumont.

9. Woódsi*i* Lindl. ✱ North America 753
Woods's Rose.
R. *lùtea nigra* Pronv.

10. frutetòrum *Bess.* ✱ Volhynia - 753
The Coppice Rose.

11. carolìna *L.* ✱ Carolina - - 753
The Carolina Rose.
R. *virginiàna* Du Roi.
R. *palústris* Marsh.
R. *corymbòsa* Ehrh.
R. *pennsylvánica* Michx.
R. *Hudsoniàna Red.*
R. *caroliniàna* Bigel.

Page
12. Lindlèy*i* Spreng. ⚘ North America 753
Lindley's *Carolina* Rose.
R. *láxa* Lindl.
R. *carolìna* ε Ait.
R. *carolìna pimpinellifòlia* Andr.

13. parviflòra *Ehrh.* ✱ N. Amer. f. 479. 753
The small-flowered, *or Pennsylvanian,* Rose.
R. *hùmilis* Marsh.
R. *caroliniàna* Michx.
R. *carolìna* γ *et* δ Ait.
Pennsylvanian Rose, Lawr.
Variety ✱ - - 753
2 flòre plèno *Red.* ✱ fig. 479.

14. *f*raxinifòlia *Börk.* ⚘ North America fig. 480. 754
The Ash-leaved Rose.
R. *virginiàna* Mill. Dict.
R. *blánda* α Sol. MSS.
R. *corymbòsa* Bosc.
R. *alpìna* β Ait.
R. *alpìna læ̀vis* Red.

15. *c*innamòmea *Besl.* ⚘ Europe fig. 481. 754
The Cinnamon-*scented* Rose.
R. *fœcundíssima* Munch.
R. *majàlis* Herm.

16. majàlis *Retz.* ⚘ Sweden - - 754
The May Rose.
R. *mútica* Fl. Dan.
R. *spinosíssima* Gorter.
R. *collíncola* Ehrh.
R. *cinnamòmea* Eng. Bot.

17. Dickson*iàna* Lindl. ⚘ Ireland - 754
Dickson's Rose.

18. taúrica *Bieb.* ⚘ Tauria - - 754
The Taurian Rose.

19. dahùrica *Pall.* ⚘ Dahuria - - 754
The Dahurian Rose.

§ iv. *Pimpinellifòliæ* Lindl. ⚘ ✱ - 755

20. alpìna *L.* ⚘ S. Europe fig. 482. 755
The Alpine Rose.
R. *rupéstris* Crantz.
R. *monspelìaca* Gouan.
R. *inérmis* Mill. Dict.
R. *hýbrida* Vill. Dauph.
R. *lagenària* Vill.
R. *biflòra* Krok.
Varieties ⚘ - - 755
2 pyrenàica *Lindl.* ⚘
R. *pyrenàica* Gouan.
R. *alpìna* Jacq.
R. *híspida* Krok.
R. *turbinàta* Vill. Dauph.
R. *alpìna* δ Dec.
R. *híspida ?*
R. *alpìna coronàta* Desv.
3 pendulìna *Lindl.* ⚘
R. *pendulìna* Ait.
R. *a. latifòlia* Ser.
4 pimpinellifòlia *Lindl.* ⚘
R. *glandulòsa* Bell.
R. *pygmæ̀a* Bieb.
R. *pyrenàica* β Smith.
5 lagenària *Ser.* ⚘
6 sorbinélla *Ser.* ⚘
7 hispidélla *Ser.* ⚘
8 læ̀vis *Ser., not of Desv. or Red.* ⚘ fig. 483.
R. *Sanguisórba majòris, &c.* Dill.
R. *alpìna glàbra* Desv.
R. *a. vulgàris* Red.
9 pyrifórmis *Ser.* ⚘
10 setòsa *Ser.* ⚘
R. *a. hircìna* Desv.
11 globòsa *Desv.* ⚘
R. *canìna ambígua* Desv.
12 *h*ellebórina *Ser.* ⚘
13 pilósula *Ser.* ⚘
14 turbinàta *Desv.* ⚘
R. *inérmis* Delam., not of Ait.
R. *a. flòre plèno* Godefroy.
R. *a. múltiplex* Ser.
R. *míxta* Tratt.

21. suàvis *Willd.* ⚘ . . . . . fig. 484. 756
The sweet Rose.

22. acicularis *Lindl.* ⚘ - - 756
The needle-*prickled* Rose.
R. *alpìna* ε *aculeàta* Ser.

23. lutéscens *Pursh.* ⚘ North America fig. 485. 756
The yellow *American* Rose.
R. *híspida* Curt.

24. sulphùrea *Ait.* ⚘ Levant f. 486. 756
The sulphur-*coloured-flowered* Rose.
R. *hemisphǽrica* Herm.
R. *glaucophýlla* Ehrh.
R. *lùtea flòre plèno* Ray.
R. *lùtea* Brot.
The double yellow Rose.

25. spinosíssima *L.* ✱ Europe f. 487. 757
The most spiny, *or Scotch,* Rose.
Varieties - - 757

26. hibérnica *Smith.* ⚘ Ireland - 757
The Irish Rose.

27. oxyacántha *Bieb.* ⚘ Siberia - 757
The sharp-prickled Rose.

28. sanguisorbifòlia *Don.* ⚘ . . . . . - 758
The Burnet-leaved Rose.
R. *spinosíssima var. sanguisorbifòlia* Lindl.
R. *spinosíssima var. macrophýlla* Ser.

29. grandiflòra *Lindl.* ⚘ Siberia f. 488. 758
The large-flowered Rose.
R. *pimpinellifòlia* Bieb.

30. myriacántha *Dec.* ✱ France f. 489. 758
The myriad-prickled Rose.
R. *parvifòlia* Pall.
R. *provinciàlis* Bieb.
R. *spinosíssima var.* η *myriacántha* Ser.

31. involùta *Smith.* ✱ Hebrides - 758
The involute-*petaled* Rose.
R. *nivàlis* Donn.

32. revérsa *Waldst. et Kit.* ⚘ Hungary 758
The reversed-*prickled* Rose.

33. Sabìn*i* Woods. ⚘ Britain - - 758
Sabine's Rose.
R. *Sabìni* β Lindl.

34. Don*iàna* Woods. ⚘ Scotland - 758
Don's Rose.

§ v. *Centifòliæ* Lindl. ⚘ ✱ ✲ - 759

35. damascèna *Mill.* ⚘ Syria f. 490. 759
The Damascus, *or Damask,* Rose.
R. *bélgica* Mill. Dict.
R. *calendàrum* Munch.
R. *bífera* Poir.
Rose à quatre Saisons, Fr.
Varieties - - - 759

36. centifòlia *Lin.* ⚘ Caucasus f. 491. 760
The hundred-petaled, *Provence, or Cabbage* Rose.
R. *provinciàlis* Mill. Dict.
R. *polyánthos* Rossig.
R. *caryophýllea* Poir.
R. *unguiculàta* Desf.
R. *vàrians* Pohl.

Page
Varieties - - - 760
1 provinciàlis *Mill.*
The Province, *or Cabbage*, Roses.
2 muscòsa *Mill.* fig. 492.
The Moss Roses.
3 *pompònia* Dec.
The Pompone Roses.
4 bipinnàta *Red.*

37. gállica *L.* Europe fig. 493. 760
The French Rose.
R. *centifòlia* Mill. Dict.
R. *sylvática* Gater.
R. *rùbra* Lam.
R. *holoscrícea* Rossig.
R. *bélgica* Brot. Fl. Lus.
R. *blánda* Brot.
Rose de Provins, Fr.
Essig Rose, Ger.
Varieties - - 761
2 pùmila *Lindl.*
R. *pùmila* L.
R. *rèpens* Munch. Hausv.
R. *híspida* Munch.
R. *austrìaca* Crantz.
R. *olýmpica* Donn.
3 arvìna *Lindl.*
R. *arvìna* Krok.
4 inapérta *Ser.*
The Vilmorin Rose.
5 A'gatha Red.
The Agatha Rose.
6 inérmis *Ser.*
7 parvifòlia *Ser.* f. 494.
The *Burgundy* Rose.
R. *parvifòlia* Ehrh.
R. *burgundìaca* Rossig.
R. *reménsis* Desf.

38. pulchélla *Willd.* ..... - 762
The neat Rose.

§ vi. *Villòsæ.* - - 762

39. turbinàta *Ait.* Germany f. 495. 762
The turbinate-*calyxed, or Frankfort*, Rose.
R. *campanulàta* Ehrh.
R. *francofortiàna* Munch.
R. *francfurténsis* Rossig.
Varieties - - 763
1 francofurtàna *Ser.*
The Frankfort Rose.
R. *turbinàta* Red.
R. *campanulàta* Ehrh.
R. *francofurtàna* Gmel.
R. *francofurténsis* Desf.
2 orbessànea *Ser.*
The Orbessan Rose.
R. *orbessànea* Red.

40. villòsa *L.* Europe - - 763
The villous-*leaved* Rose.
R. *móllis* Sm.
R. *tomentòsa β* Lindl.
R. *heterophýlla* Woods in L. Trans.
R. *pulchélla* Woods.
R. *pomífera* Herm.
Varieties - - 763
2 resinòsa *Lindl.*
3 pomífera *Desv.*
R. *híspida* Poir.

Page
41. grácilis *Woods.* Britain - - 763
The slender Rose.
R. *villòsa* Smith.

42. tomentòsa *Smith.* Europe - 763
The tomentose, *or woolly-leaved*, Rose.
R. *villòsa* Ehrh.
R. *mollissima* Börk.
R. *dùbia* Wibel.
R. *villòsa β* Huds.
Variety - - 763
2 scabriúscula *Sm.*
R. *fœ'tida* Batard.

43. Sherárd*i* Davies. England - 764
Sherard's Rose.
R. *subglobòsa* Sm.
R. *tomentòsa var. ε et η* Woods.

44. sylvéstris *Lindl.* England - 764
The Wood Rose.
R. *tomentòsa sylvéstris* Woods.

45. móllis *Led.* Caucasus - - 764
The soft-*leaved* Rose.
R. *Ledeboùrii Spreng.*

46. álba *L.* Europe fig. 496. 764
The *common* white Rose.
R. *usitatíssima* Gat.
Variety - - - 764

§ vii. *Rubiginòsæ* Lindl. - 764

47. lùtea *Dodon.* Germany f. 497. 765
The yellow *Eglantine* Rose.
R. Eglantèria *L.*
R. *fœ'tida* Herm.
R. *chlorophýlla* Ehrh.
R. *cèrea* Rossig.
Varieties - - 765
2 subrùbra *Red.*
3 punícea *Lindl.* f. 498.
R. *punícea* Mill. Dict.
R. *cinnamòmea* Roth.
R. *lùtea bícolor* Jacq.
R. Eglantèria *punícea* Red.
R. Eglantèria *bícolor* Dec.

48. rubiginòsa *L.* Europe f. 499. 765
The rusty-*leaved* Rose, *Sweet Briar, or Eglantine.*
R. *suavifòlia* Light.
R. Eglantèria *Mill. Dict.*
R. *agréstis* Savi.
R. *rubiginòsa parviflòra* Rau.
Varieties - - 765
2 Vaillant*iàna* Red.
3 rotundifòlia *Lindl.*
4 aculeatíssima *Dup.*
5 nemoràlis *Red.*
6 umbellàta *Lind.*
R. *tenuiglandulòsa* Mer.
R. *r.* Eglantèria *cymòsa* Woods.
R. *sempervìrens* Roth.
7 pùbera *Ser.* -
8 grandiflòra *Lindl.*
9 màjor *Ser.* -
10 spinulifòlia *Ser.*
11 flexuòsa *Lindl.*
12 parvifòlia *Lindl.*
Garden Varieties.

49. suavèolens *Pursh.* N. America 766
The sweet-scented Rose, *American Sweet Briar, or Eglantine.*
R. *rubiginòsa* and R. Eglantèria *of the Americans.*

Page
50. micrántha *Sm.* ✱ Britain - - 766
The small-flowered Rose, *or Sweet Briar.*
R. *rubiginòsa β micrántha* Lindl.

51. sèpium *Thuil.* ✱ Europe - 766
The Hedge Rose, *or Briar.*
R. *helvética* and
R. *myrtifòlia* Hall.
R. *canìna β* Dec.
R. *agréstis* Savi.
R. *biserràta*, R. *macrocárpa*, and R. *stipulàris* Mer.

52. ibérica *Stev.* ✱ Iberia - - 766
The Iberian Rose.

53. glutinòsa *Sm.* ⚘ Levant - - 766
The clammy Rose, *or Briar.*
R. *rubiginòsa crética* Red.
R. *rubiginosa sphærocárpa* Desv.

54. Klùkii Begs. ✱ Tauria - - 766
Kluki's Rose, *or Sweet Briar.*
R. *rubiginòsa* Bieb.
R. *floribúnda* Stev.
R. *balsàmea* Bess.

55. Montezùmæ Humb. ✱ Mexico - 766
Montezuma's Rose, *or Briar.*

§ viii. *Canìnæ* Lindl. ✱ ✹ ⚘ ⚲ 767

56. caucásica *Pall.* ✱ Caucas. f. 500. 767
The Caucasian Dog Rose.
R. *leucántha* Bieb.

57. canìna *L.* ✱ Europe - - 767
The *common* Dog Rose.
R. *dumàlis* Bechst.
R. *andegavénsis* Bat.
R. *glaúca* Lois.
R. *arvénsis* Schrank.
R. *glaucéscens* and R. *nìtens* Mer.
R. *teneriffénsis* Donn.
R. *senticòsa* Achar.

Varieties. ✱ -
2 surculòsa *Woods.* ✱ - 767
3 nùda *Woods.* ✱ - - 767
4 aciphýlla *Lindl.* ✱ f. 501, 502. 767
R. *aciphýlla* Rau.
5 ægyptìaca *Lindl.* ✱ - - 767
R. *índica* Forsk.
6 burboniàna *Desv.* ✱ - 767
7 nìtens *Desv.* ✱ - - 768
R. *nìtens* Desv.
8 obtusifòlia *Desv.* ✱ - - 768
R. *obtusifòlia* Desv.
R. *leucántha* Lois.
9 glaucéscens *Desv.* ✱ - 768
R. *glaucéscens* Desv.
R. *canìna glaúca* Desv.
10 Schottiàna Ser. ✱ - 768
R. *glaúca* Schott.
11 pilosiúscula *Desv.* ✱ - 768
R. *hùmilis* Bess.
R. *nitídula* Bess.
R. *friedlanderiàna* Bess.
R. *collìna* Rau.
12 fastigiàta *Desv.* ✱ - 768
R. *fastigiàta* Bast.
R. *stylòsa β* Desv.
13 híspida *Desv.* ✱ - 768
R. *canìna var. lanceolàta, grandidentàta*, and *ovoidàlis* Desv.
R. *andegavénsis* Bast.
R. *sempervìrens* Bast., not of L.
14 microcárpa *Desv.* ✱ - 768
15 Meratiàna Ser. ✱ - - 768
? R. *biserràta* Mer.
16 ambígua *Desv.* ✱ - - 768
R. *malmundiarénsis* Lejeune.
17 squarròsa ✱ - - - 768
R. *canìna β* Dict. Fl. Taur.
18 rubiflòra *Ser.* ✱ - 768

58. Fórsteri Sm. ✱ Europe - 768
Forster's *Dog* Rose.
R. *collìna β* et *γ* Woods.

59. dumetòrum *Thuill.* ✱ Europe - 768
The Thicket *Dog* Rose.
R. *leucántha β acutifòlia* Bast.
R. *sèpium* Börkh.
R. *solstitiàlis* Bess.
R. *corymbífera* Gmel.

60. bractéscens *Woods.* ✱ England - 769
The bractescent *Dog* Rose.

61. sarmentàcea *Swartz.* ✱ Europe - 769
The sarmentaceous *Dog* Rose.
R. *glaucophýlla* Winch.
R. *canina* Roth.

62. cæ̀sia *Sm.* ✱ Scotland - - 769
The grey *Dog* Rose.
R. *canìna pubéscens* Afz.
R. *canìna ζ cæ̀sia* Lindl.

63. Bórreri Woods. ✱ Britain - 769
Borrer's *Dog* Rose.
R. *dumetòrum* Sm.
R. *rubiginòsa β* Lindl.
R. *rubiginòsa inodòra* Hook.
? R. *sèpium* Börkh., not of Thuill.
R. *affinis* Rau.
R. *uncinélla β* Besser.

64. rubrifòlia *Vill.* ✱ S. Europe f. 503. 769
The red-leaved *Dog* Rose.
R. *multiflòra* Reyn.
R. *rubicúnda* Hall.
R. *lívida* Andr.
R. *cinnamòmea γ rubrifòlia* Red.

Varieties. ✱ - - 769
2 hispídula *Ser.* ✱
R. *cinnamòmea glaúca* Desf.
3 Redoutèa Ser. ✱
4 inérmis *Ser.* ✱
5 pinnatífida *Ser.* ✱
R. *r. germínibus-ovàtis* and R. *montàna germínibus glàbris* Schlech.
R. *canìna globòsa* Desv.

65. índica *L.* ✹ China fig. 504. 770
The Indian, *or common China*, Rose.
R. *sínica* L. Syst. Veg.
R. *semperflòrens cárnea* Rossig.
R. *índica chinénsis semiplèna* Ser.
R. *reclinàta flòre submultíplici* Red.
The monthly Rose, the blush China Rose, the Tea-scented Rose.

Varieties ✹ ⚲ - - 770
2 Noisettiàna Ser. ✹ f. 505.
The Noisette Rose.
Subvarieties.
purpùrea *Red.*
nívea *Hort.*
Smíthii Hort.
3 odoratíssima *Lindl.* ✹ f. 506.
The sweetest, *or Tea*, scented *China* Rose.
R. *odoratíssima* Swt.
R. *índica frágrans* Red.
4 longifòlia *Lindl.* ✹ f. 507. 771
R. *longifòlia* Willd.
R. *semperflòrens var.* 7. N. Du Ham.
R. *salicifòlia* Hort.
5 pùmila *Lindl.* ✹
6 caryophýllea *Red.* ✹

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7 pannòsa *Red.* ♣
8 cruénta *Red.* ♣
9 Fraseri*àna* Hort. Brit. ♣
10 rùga *Lindl.* ⫫
11 ochroleùca *Bot. Reg.* ♣
The yellow *China* Rose.

66. semperflòrens *Curt.* ♣ China f. 508. 771
The ever-flowering *China* Rose.
R. *diversifòlia* Vent.
R. *bengalénsis* Pers.
R. *índica* Red.

67. Lawrence*àna* Swt. ♣ China f. 509. 772
Miss Lawrence's *China* Rose.
R. *semperflòrens mínima* Sims.
R. *índica var. α acuminàta* Red.
R. *índica Lawrenceàna Red.*

§ ix. *Sýstylæ* Lindl. ♣ ⫫ ⫫⌋ ᒪ ✱ ⁓ 772

68. sýstyla *Bat.* ⫫ ✱ France - - 772
The connate-styled Rose.
R. *collìna* Sm.
R. *stylòsa* Desv.
R. *brevístyla* Dec. Fl. Fr.
R. *bibracteàta* Dec.
R. *sýstyla α ovàta* Lindl.

69. arvénsis *Huds.* ⫫ ✱ Britain f. 510. 772
The Field Rose.
R. *sylvéstris* Hem.
R. *scándens* Mœnch.
R. *herpérhodon* Ehrh. Beitr.
R. *Hálleri Krok.*
R. *fúsca* Mœnch.
R. *sérpens* Ehrh. Arbor.
R. *sempervìrens* Rossig.
R. *rèpens* Gmel.
R. *rámpans* Reyn.
Varieties ⫫ ✱ - - 772
2 ayreshírea *Ser.* ⫫ ✱
R. *capreolàta* Neill.
3 hýbrida *Lindl.* ⫫ ✱

70. (a.) sempervìrens *L.* ᒪ ⁓ S. Europe fig. 511. 773
The evergreen (Field) Rose.
R. *scándens* Mill. Dict.
R. *baleárica* Desf.
R. *atrovìrens* Viv.
R. *sempervìrens globòsa* Red.
R. *sempervìrens var. α scándens* Dec.
Varieties ⫫ ᒪ ✱ ⁓ - - 773
2 Russelli*àna* ⫫ ✱
3 Clàre*i* Bot. Reg. ⫫ ✱
The Rose Clare.
4 Leschenault*iàna* Red. ᒪ ⁓

71. multiflòra *Thunb.* ⫫ Japan f. 512. 773
The many-flowered Rose.
R. *flàva* Donn.
R. *flórida* Poir.
R. *diffùsa* Roxb.
Varieties - - 774
2 Grevíllei Hort. ⫫⌋ f. 513.
R. *Roxbúrghii Hort.*
R. *platyphýlla* Red.
3 Russelli*àna* ⫫
4 Boursaúlt*i* Hort. ⫫⌋

72. Brunòn*ii* Lindl. ⫫ ✱ Nepal - 775
Brown's Rose.
R. *Brównii Spreng.*

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73. moschàta *Mill.* ⫫ ✱ Barbary fig. 514. 775
The Musk Rose.
R. *opsostémma* Ehrh.
R. *glandulífera* Roxb.
Varieties ⫫ - - 775
2 flòre plèno *G. Don.* ⫫
3 nívea *Lindl.* ⫫ fig. 515.
R. *nívea* Dupont, not of Dec.
R. *m. ? var. ròsea* Ser.

74. rubifòlia *R. Br.* ♣ North America fig. 516. 776
The Bramble-leaved Rose.
Variety ✱ - - - 776
3 fenestràlis *Lindl.* ✱
R. *fenestràta.*

§ x. *Banksiànæ Lindl.* ⫫ - - 776

75. sínica *Ait.* ⫫ China f. 517. 776
The *trifoliate-leaved* China Rose.
R. *trifoliàta* Bosc.
R. *ternàta* Poir.
R. *cherokeénsis* Donn.
R. *nívea* Dec.

76 Bánks*iæ* R. Br. ⫫ China f. 518. 777
Lady Banks's Rose.
R. *Banksiàna Abel.*
R. *inérmis* Roxb. ?
Variety ⫫ - - - 777
2 lùtea *Lindl.* ⫫ fig. 519.

77. microcárpa *Lindl.* ⫫ China f. 520. 777
The small-fruited Rose.
R. *cymòsa* Tratt.

App. i. *Hardy Species of the Genus* Ròsa, *not yet introduced.* - - 778
§ i. *Feròces.* - - - 778
R. rugòsa *Thunb.*
§ ii. *Bracteàtæ.* - - 778
R. Lyéll*ii* Lindl.
§ iii. *Cinnamòmeæ.* - - 778
R. láxa *Retz.*
R. kosingiàna *Bess.*
R. songárica *Bunge.*
R. aristàta *Lapey.*
R. macrophýlla. fig. 521.
§ iv. *Pimpinellifòliæ.* - - 778
R. Candolle*àna* Don's Mill.
R. *rubélla* Lindl.
R. *péndula* Roth.
R. *alpìna* Pall.
R. *poliphýlla* Willd.
R. *alpìna var. rubélla* Ser.
R. *Candolleàna péndula* Red.
R. *Candolleàna élegans* Thor.
R. flàva *Wicks.*
R. vimínea *Lindl.*
R. Webbi*àna* Wall.
R. reclinàta *Red.*
§ v. *Centifòliæ.* - - 778
R. pygmæ'a *Bieb.*
R. adenophýlla *Willd.*
R. verecúnda *Waitz.*
? R. *damascèna var.*
§ vi. *Villòsæ.* - - 778
R. híspida *Poir.*
R. *villòsa var. pomífera* Desv.
R. *terebinthàcea Bess.*

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§ vii. *Rubiginòsæ.* - - 778

R. montàna *Vill.*
R. uncinélla *Bess.*
R. caryophyllàcea *Bess.*
R. inodòra *Fries.*
R. cuspidàta *Bieb.*
R. agréstis *Swartz*
R. pseudo-rubiginòsa *Lejeune.*
R. Wolfgangiàna Bess.
R. dimórpha *Bess.*
R. Willdenòvii Spreng.
  R. *microphýlla* Willd.
  R. *arenària* Bieb.
R. floribúnda *Bess.*

§ viii. *Canìnæ.* - - 778

R. ciliàto-pétala *Bess.*
R. Gmelìni Bunge.
  R. *canìna* Sevres.
R. collìna *Jacq.*
R. báltica *Roth.*
R. Jundzíllii Begs.
R. turbinélla *Swartz.*
R. venòsa *Swartz.*
R. corifòlia *Fries.*
R. saxátile *Stev.*
R. serícea *Lindl.* fig. 522
R. atropurpùrea *Brot.*

§ ix. *Sýstylæ.* - - 779

R. moschàta nepalénsis. fig. 523.
  ? *R.* Brunònii var. nepalénsis *Bot. Reg.*
R. evratìna *Rosc.*

§ x. *Banks*iànæ. - - 779

R. hýstrix *Lindl.* fig. 524.

App. ii. *Half-hardy Species of the Genus Ròsa, not yet introduced.* - 779

§ iv. *Pimpinellifòliæ..* - - 779

R. nankinénsis *Lour.*

§ viii. *Canìnæ.* - - 779

R. pseudo-índica *Lindl.*

§ x. *Banks*iànæ. - - 779

R. recúrva *Roxb.*
R. triphýlla Roxb.
  ? R. *microcárpa.*
  ? R. *sínica var.*
R. fragariæflòra *Ser.*
R. amygdalifòlia *Ser.*

App. iii. *Uncertain Species of* Ròsa. 779

App. iv. *A practical Arrangement of Roses in actual Cultivation in the Nursery of Messrs. Rivers and Son, Sawbridgeworth, Hertfordshire.* - - - 779

XII. LOWE*A* Lindl. ✹ ⌋ - - 812
The Lowea.
  Ròsa *sp.* Pall.

1. *berberi*fòlia *Lindl.* ✹ ⌋ Persia fig. 594. 813
The Berberry-leaved Lowea.
  Ròsa *simplicifòlia* Sal.
  Ròsa berberi*fòlia* Pall.

Varieties ✹ ⌋ - - 813
1 glàbra *Ser.* ✹ ⌋
2 velutìna *Ser.* ✹ ⌋
3 Redouteàna Ser. ✹ ⌋
  R. berberi*fòlia* Red.
  R. *simplicifòlia* Sal.

Sect. V. Pomeæ *Lindl.* - 672. 813

XIII. *C*RATÆGUS *Lindl.* ♆ ♀ ♀ ⊔ ♀ ⌋ ✽ ✹ ✹ ⌋ fig. 672. 813
The Thorn.
  Cratægus and *Méspilus sp.* L. and others.
  Néflier, *Alisier*, *Aubépine*, Fr.
  Doorn, *Uzbeer*, *Mispel*, Ger.
  Doorn, Dutch.
  Spino, Ital.
  Espino, Span.

§ i. *Coccíneæ.* ♆ - - 816

1. coccínea *L.* ♆ North America pl. 119. fig. 564. in p. 851. - - 816
The scarlet-*fruited* Thorn.
  C. *æstivàlis* Booth.
  Méspilus æstivàlis Walt.
  Méspilus coccínea Mill.
  Thornless American Azarole.
  Néflier écarlate, Fr.
  Scharlachrothe Mispel, Ger.

Varieties ♆ - - - 816
2 corállina ♆ f. 565. in p. 852.
  C. *corállina* Lodd.
  C. *pyrifórmis* of some collections.
3 indentàta ♆ f. 566. in p. 852.
  C. *indentàta* Lodd.
4 máxima *Lodd.* ♆
  C. *c. spinòsa* Godefroy.
  C. *? flabellàta* Hort.

2. glandulòsa *W.* ♆ North America pl. 120. fig. 567. in p. 853. -817
The glandular Thorn.
  ? *C. sanguínea* Pall.
  ? *Méspilus rotundifòlia* Ehrh.
  Pýrus glandulòsa Mœnch.
  C. *rotundifòlia* Booth.

Varieties ♆ - - 818
2 succulénta *Fisch.* ♆
  Méspilus succulénta Booth.
3 subvillòsa ♆ f. 550., and f. 568. in p. 853.
  C. *subvillòsa* Fisch.

§ ii. *Punctàtæ.* ♆ - - 818

3. punctàta *Ait.* ♆ North America pl. 124. fig. 569, 570. in p. 854. - 818
The dotted-*fruited* Thorn.
  C. *Crús-gálli* Du Roi.
  Méspilus cuneifòlia Ehrh.
  Méspilus punctàta Link.
  Méspilus córnifolia Lam.

Varieties ♆ - - 818
1 rùbra *Pursh* ♆ fig. 569. in 854.
  C. *edùlis* Ronalds.
2 rùbra strícta *Hort.* ♆
  C. *p. strícta* Ronalds.
3 aúrea *Pursh* ♆ fig. 570. in p. 854.
  C. *p. flàva* Hort.
  C. *dúlcis* Ronalds.
  C. *edùlis* Lodd.
  C. *pentágyna flàva* Godefroy.

Page
4. *pyrifòlia* *Ait.* 🌳 North America pl. 122.
fig. 571. in p. 854. - - 819
The Pear-tree-leaved Thorn.
C. *leucophlœ̀os* (*white-barked*) Mœnch.
C. *radiata* Lodd.
C. *tomentòsa* Du Roi.
Méspilus latifòlia Lam.
Méspilus Calpodéndron Ehrh
Méspilus pyrifòlia Link.
Méspilus cornifòlia Poir.
C. *latifòlia* Ronalds.
C. *cornifòlia* Booth.

§ iii. *Macracánthæ.* 🌳 - - 819

5. macracántha *Lodd.* 🌳 North America
pl. 123. fig. 572. in p. 855. - 819
The long-spined Thorn.
Variety 🌳 - - 819
2 mìnor 🌳 fig. 573. in p. 855. 819

§ iv. *Crús-gálli.* 🌳 🌿 - - 820

6. Crús-gálli *L.* 🌳 North America
pl. 124, 125. fig. 574. in p. 856. 820
The Cock's-spur Thorn.
C. *lùcida* Wang.
C. *cuneifòlia* Lodd.
Méspilus lùcida Ehrh.
Méspilus Crús-gálli Poir.
Méspilus hyemàlis Walt.
Méspilus cuneifòlia Mœnch.
Glänzende Mispel, Ger.
Varieties. 🌳 🌿
2 spléndens *Dec.* 🌳 fig. 575. in
p. 856. - - 820
C. *arbutifòlia* and C. *spléndens*
Lodd.
3 pyracanthifòlia *Dec.* 🌳 pl. 126.
fig. 580. in p. 856. - 820
C. *pyracanthifòlia* Lodd.
Méspilus lùcida Dunn.
4 salicifòlia *Dec.* 🌳 pl. 127. f. 551,
552, 553., and fig. 578. in
p. 856. - - 820
C. *salicifòlia.*
5 lineàris *Dec.* 🌳 fig. 577. in
p. 856. - - 821
Méspilus lineàris Desf.
C. *lineàris* Lodd.
6 nàna *Dec.* 🌿 - fig. 552. 821
Méspilus nàna Dun.

7. (C.) ovalifòlia *Horn.* 🌳 N. America
pl. 128. fig. 579. in p. 856. - 821
The oval-leaved Thorn.
C. *ellíptica* Lodd.
C. *Crús-gálli ovalifòlia* Bot. Reg.

8. (C.) *prunifòlia* *Bosc.* 🌳 N. America
pl. 129. fig. 576. in p. 856. - 821
The Plum-leaved Thorn.
Méspilus prunifòlia Poir.
C. *caroliniàna* Lodd.
Variety 🌳 - - 821
2 ingóstria 🌳
C. *ingéstria* Lodd.

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§ v. *Nìgræ.* 🌳 - - 822
9. nìgra *Waldst. et Kit.* 🌳 Hungary
pl. 130. fig. 581. in p. 857. - 822
The black-*fruited* Thorn.
Méspilus nìgra Willd.
C. *carpàtica* Lodd.

10. purpùrea *Bosc.* 🌳 ..... pl. 131.
fig. 582. in p. 857. - - 822
The purple-*branched* Thorn.
C. *sanguìnea* Hort.
Variety 🌳 - - - 823
2 altàica 🌳 f. 583. in p. 858.

§ vi. *Douglàsii.* 🌳 - - 823

11. Douglàs*ii* Lindl. 🌳 North America
pl. 132. fig. 584. in p. 858. - 823
Douglas's Thorn.
C. *punctàta var. brevispìna* Douglas.

§ vii. *Flàvæ.* 🌳 - - 823

12. flàva *Ait.* 🌳 North America pl. 133.
fig. 585. in p. 859. - - 823
The yellow-*fruited* Thorn.
C. *glandulòsa* Michx., not of Walt.
Méspilus Michaùxii Pers.
C. *caroliniàna* Poir
C. *flavíssima* Hort.

13. (f.) lobàta *Bosc.* 🌳 ..... fig. 544.,
and fig. 586. in p. 859. - 824
The lobed-*leaved* Thorn.
Méspilus lobàta Poir.
C. *lùtea* Hort.

14. trilobàta *Lodd.* 🌳 Hybrid fig. 587.
in p. 860. - - - 824
The three-lobed-*leaved* Thorn.
C. *spinosíssima* Lee.

§ viii. *Apiifòliæ.* 🌳 - - 824

15. *a*piifòlia *Michx.* 🌳 North America
pl. 134. fig. 589. in p. 860. - 824
The Parsley-leaved Thorn.
C. *Oxyacántha* Walt.
C. *apiifòlia májor* Lodd.
Variety 🌳 - - - 825
2 mìnor 🌳 f. 588. in p. 860. 825

§ ix. *Microcárpæ.* 🌳 - - 825

16. cordàta *Mill.* 🌳 N. America pl. 135.
fig. 590. in p. 861. - - 825
The heart-shaped-*leaved* Thorn.
C. *populifòlia* Walt.
Méspilus acerifòlia Poir.

17. spathulàta *Elliot.* 🌳 North America
pl. 136. fig. 591. in p. 861. - 825
The spathula-*shaped-leaved* Thorn.
C. *microcárpa* Lindl.

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§ x. Azaròli. ‡ - - 826

18. *Azaròlus* L. ‡ France pl. 137. fig. 592. in p. 862. - - 826
The Azarole Thorn.
Pȳrus Azaròlus *Scop.*
Méspilus Azaròlus *All.*
E'pine d'Espagne, Néflier de Naples, Pommettes à deux Closes, Fr.

Varieties ‡ - - - 826
1 With the leaves hairy beneath. ‡
Méspilus Arònia.
2 With large deep red fruit. ‡
3 With yellowish white fruit. ‡
4 With long fruit of a whitish yellow. ‡
5 With double flowers. ‡
6 The white Azarole of Italy. ‡

19. (*A.*) maroccàna *Pers.* ‡ Morocco pl. 138. fig. 594. in p. 862. - 827
The Morocco Thorn.
? C. *maúra* L.

20. Arònia *Bosc.* ‡ Levant pl. 139. fig. 593. in p. 862. 827
The Aronia Thorn.
Méspilus Arònia Willd. Enum.
C. Azaròlus *β Willd. sp.*

21. orientàlis *Bosc.* ‡ South Europe pl. 140. fig. 595. in p. 863. 827
The Eastern Thorn.
Méspilus orientàlis Poir.
C. *odoratíssima* Bot. Rep.

Variety ‡ - - 828
2 sanguínea ‡ f. 596. in p. 863. 828
C. *tanacetifòlia* 2 *taúrica* Dec.
C. *sanguínea* Schrader.
C. *orientàlis* Lindl.

22. tanacetifòlia *Pers.* ‡ Greece pl. 141. fig. 597. in p. 863. - - 828
The Tansy-leaved Thorn.
Méspilus tanacetifòlia Poir.
Méspilus pinnàta Dum.
? *Méspilus Celsiàna* *Dum.*
Varieties ‡ - - 828
2 glàbra *Lodd.* ‡ pl. 142. f. 598. in p. 863.
3 Leeàna ‡ pl. 143. f. 599. in p. 864.
Lee's Seedling, *Hort.*
C. *incìsa* Lee.

§ xi. *Heterophýlla.* ‡ - - 829

23. heterophýlla *Flugge* ‡ ..... pl. 144. fig. 600. in p. 864. - - - 829
The various-leaved Thorn.
C. *neapolitàna* Hort.
Méspilus constantinopolitàna Godefroy.

§ xii. *Oxyacánthæ.* ‡ - 829

24. Oxyacántha *L.* ‡ Europe pl. 145, 146. fig. 602. in p. 865. - 829
The sharp-thorned Cratægus, *or common Hawthorn.*
The Pyracantha of the Greeks.

Page
Méspilus Oxyacántha Gærtn.
E'pine blanche, Noble E'pine, Bois de Mai, Scuellier Aubépine, Néflier Aubépine, Fr.
Hagedorn, Gemeiner Weissdorn, Ger.
Hagetoon, Dan.
Hagetorn, Swed.
Bianco-spino, Ital.
Espino blanco, Span.
White Thorn, May Bush, Quick, Quickset, May.

Varieties. ‡

2 obtusàta *Dec.* ‡ pl. 147. f. 601. in p. 864. - - 830
Méspilus Oxyacántha integrifòlia Wallr.
C. *Oxyacanthöìdes* Thuill.
C. *Oxyacántha* Fl. Dan.
The French Hawthorn.
3 sibírica ‡ fig. 555. - 830
C. *sibírica* Lodd.
C. *monógyna* L.
4 transylvánica *Hort.* ‡ - 830
5 quercifòlia *Booth.* ‡ f. 603. in p. 866. - - 830
6 laciniàta ‡ pl. 148. f. 663. in p. 865. - - 830
C. *laciniàta* Lodd.
7 pteridifòlia ‡ fig. 604. in p. 865. - - - 831
C. *pterifòlia* Lodd.
C. *pectinàta* Hort.
8 eriocárpa *Lindl.* ‡ pl. 149. fig. 607. in p. 865. - 831
C. *eriocárpa* Lodd.
9 purpùrea *Penny* ‡ f. 611. in p. 866. - - 831
10 Oliveriàna ‡ pl. 150. f. 606. in p. 865. - - 831
C. *Oliveriàna Bosc.*
C. *Olivèria Lodd.*
C. *orientàlis* Lodd.
11 melanocárpa ‡ pl. 151. f. 605. in p. 865. - - 831
C. *físsa* Lee.
C. *Oxyacántha platyphýlla* Lodd.
C. *platyphýlla* Lindl.
12 aùrea *Hort.* ‡ fig. 610. in p. 866. - - 831
C. *flàva* Hort.
13 aurantìaca *Booth.* ‡ - 831
14 leucocárpa ‡ - - 831
15 múltiplex *Hort.* ‡ f. 609. in p. 866. - - - 832
C. O. *flòre plèno* Hort.
16 ròsea *Hort.* ‡ fig. 612. in p. 866. - - - 832
E'pinier Marron, Fr.
17 punícea *Lodd.* ‡ - - 832
C. O. *ròsea supérba* Hort.
18 punícea flòre plèno *Hort.* ‡ 832
19 fòliis aúreis *Lodd.* ‡ - 832
20 fòliis argénteis *Hort.* ‡ - 832
21 stricta *Lodd.* ‡ pl. 152. 832
C. O. *rígida* Ronalds.
22 Celsiàna Hort. ‡ - - 832
23 péndula *Lodd.* ‡ - - 832
24 regìnæ *Hort.* ‡ pl. 153. fig. 556. 832
Queen *Mary's* Thorn.

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25 præ'cox *Hort.* ⚘ - - 833
The early-*flowering, or Glastonbury,* Thorn.
26 monógyna ⚘ - - 834
C. *monógyna* Jacq.
27 apétala *Lodd.* ⚘ - - 834
28 lùcida ⚘ - - - 834
29 capitàta *Smith of Ayr.* ⚘ - 834
30 flexuòsa *Smith of Ayr.* ⚘ 835

§ xiii. *Parvifòliæ.* ⚘ - - 841

25. parvifòlia *Ait.* ✱ North America f. 557., and f. 614. in p. 867. - 841
The small-leaved Thorn.
Méspilus axillàris Pers.
Méspilus tomentòsa Poir.
Méspilus xanthocárpos L.
Méspilus parvifòlia Wats.
C. *tomentòsa* L.
C. *uniflòra* Du Roi.
C. *viridis*, C. *axillàris*, C. *betulifòlia*, C. *flòrida*, and C. *lineàris* Lodd.
Gooseberry-leaved Thorn.

Varieties ✱ - - 842
2 flórida ✱ fig. 558., and fig. 613. in p. 867.
C. *flòrida* Lodd.
3 grossulariæfòlia ✱ fig. 559., and fig. 616. in p. 867.

26. virgínica *Lodd.* ✱ Virginia fig. 560., and fig. 615. in p. 867. - - 842
The Virginian Thorn.
C. *virginiàna* Hort.

§ xiv. *Mexicàna.* ♀ ⌐┘ - - 843

27. mexicàna *Moc. et Sesse.* ♀ ⌐┘ Mexico pl. 154. fig. 617. in p. 867. - 843
The Mexican Thorn.
C. *stipulàcea* Lodd.

§ xv. *Pyracántha.* ✱ ✱ ⌐┘ - 844

28. *Pyracántha Pers.* ✱ South Europe fig. 561. 844
The fiery Thorn, or Pyracantha.
Méspilus Pyracántha L.
Evergreen Thorn.
Buisson ardent, Fr.
Immergrüne Mispel, Ger.

Variety ✱ ⌐┘ - - 844
2 crenulàta ✱ ⌐┘
C. *crenulàta* Roxb. MSS.
Méspilus crenulàta D. Don.

§ xvi. *Glaúca.* ♀ - - 844

29. glaúca *Wall.* ♀ Nepal f. 562, 563. 844
The glaucous-*leaved evergreen* Thorn.

App. i. *Synopsis of the Species of Cratæ'gus growing, in* 1836, *in the Horticultural Society's Garden.* - - - 845

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App. ii. *Additional Species of Cratæ'gus.* 848

§ i. *Leaves toothed, or nearly entire, never regularly lobed.* ⚘ - - 848
C. subspinòsa *Dec.*
Méspilus subspinòsa Vent.
C. *prunellæ*fòlia *Bosc.* ⚘
C. latifòlia *Pers.* ⚘
C. flexuòsa *Poir.*
C. alpìna *Mill. Dict.* ⚘
C. lùtea *Poir.*
C. pauciflòra *Pers.*
C. unilateràlis *Pers.*
C. lùcida *Mill. Dict.* ⚘

§ ii. *Leaves variously lobed, or cut.* ⚘ - 848
C. turbinàta *Pursh.*
C. pentágyna *Waldst. et Kit.* ⚘
C. kyrtóstyla *Fing.*
C. laciniàta *Dec.* ⚘
C. lævigàta *Dec.*
Méspilus lævigàta Poir.
C. Poiret*tiàna* Dec. ⚘
Méspilus lineàris Poir.
C. pectinàta *Bosc.*
C. trifoliàta *Bosc.*
C. quinquelobàta *Bosc.*
C. odoràta *Bosc.*
C. obovàta *Bosc.*
C. flavéscens *Bosc.*
C. flabellàta *Bosc.* ⚘
C. lùcida latifòlia *Boll. Cat.* ⚘
C. lùcida mèdia *Boll. Cat.* ⚘

App. iii. *Alphabetical List of Sorts of Cratæ'gus in the Arboretum of Messrs. Loddiges, as given in their Catalogue,* 16*th ed.*, 1836; *with some Additions, taken from the Names placed against Plants in their Nursery, but not in the Catalogue; referred to the Species and Varieties of Cratæ'gus as given in this Work.* - - - - 848

App. iv. *Alphabetical List of the Species and Varieties of Cratæ'gus described in the Arboretum Britannicum, with the Names which are appended to the Specimen Plants of these Sorts in the Arboretum of Messrs. Loddiges* - - - - 849

XIV. PHOTI'NIA *Lindl.* ♀ └┘ ♀ ⌐┘ 673. 868
The Photinia.
Cratæ'gus sp. L.

1. serrulàta *Lindl.* ♀ ⌐┘ Japan pl. 155. 868
The serrulated-*leaved* Photinia.
Cratæ'gus glàbra Thunb.
Strausvæ'sia Lindl.

2. *a*rbutifòlia *Lindl.* ♀ ⌐┘ California fig. 619. 868
The Arbutus-leaved Photinia.
Cratæ'gus arbutifòlia Ait. - - 868

3. integrifòlia *Lindl.* ♀ ⌐┘ Nepal - 869
The entire-leaved Photinia.
P*ỳ*rus *integérrima* Wall.

4. dùbia *Lindl.* ♀ └┘ Nepal - - 869
The doubtful Photinia.
Méspilus bengalénsis Roxb.
Méspilus tinctòria D. Don.
Cratæ'gus Shicòla *Ham. MSS.*

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App. i. *Species of Photínia not yet introduced.* - - 869
P. bengalénsis *Wall.*
P. Siebóld*ii* Don's Mill.
*Méspilus Siebóld*ii *Blum.*
P. læ`vis *Dec.*
Cratæ`gus læ`vis Thunb.
P. villòsa *Dec.*
Cratæ`gus villòsa Thunb.

XV. COTONEA′STER *Med.* ‡ † ✲ ✱ 673. 869
The Cotoneaster.
Méspilus sp. L.

§ i. *Leaves deciduous. Shrubs.* ✲ - 870

1. vulgàris *Lindl.* ✲ Europe f. 620. 870
The common Cotoneaster.
Méspilus Cotoneáster L.
Néflier cotonneux, Fr.
Quitten Mispel, Ger.
Varieties ✲ - - - 870
1 erythrocárpa *Led.* ✲
2 melanocárpa *Led.* ✲
3 depréssa *Fries.* ✲

2. (v.) tomentòsa *Lindl.* ✲ Switzer. 870
The tomentose, *or woolly*, Cotoneaster.
Méspilus tomentòsa Willd., not of Lam
Méspilus eriocárpa Dec.

3. (v.) laxiflòra *Jacq.* ✲ . . . . . fig. 621, 622. 870
The loose-flowered Cotoneaster.

§ ii. *Subevergreen or deciduous. Tall Shrubs, or low Trees.* ‡ † - - 871

4. frígida *Wall.* † Nepal pl. 156. 871
The frigid Cotoneaster.
Pýrus Nússia *Ham.*

5. (f.) affìnis *Lindl.* ‡ † Nepal pl. 157. 871
The related (to C. frígida) Cotoneaster.
Méspilus integérrima Ham. MSS.

6. acuminàta *Lindl.* ‡ † Nepal pl. 158. 872
The acuminated-*leaved* Cotoneaster.
Méspilus acuminàta Lodd.

7. nummulària *Lindl.* ‡ Nepal pl. 159. 872
The money-like-*leaved* Cotoneaster.

§ iii. *Leaves evergreen, leathery. Low Shrubs, with prostrate Branches; Trailers, but not properly Creepers.* ✱ - - - 872

8. rotundifòlia *Wall.* ✱ Nepal fig. 623, 624. 872
The round-leaved Cotoneaster.
C. *microphýlla β U`va-úrsi* Lindl.
The Bear-berry-leaved Nepal Cotoneaster.

9. (r.) microphýlla *Wall.* ✱ Nepal fig. 625. 873
The small-leaved Cotoneaster.

10. (r.) buxifòlia *Wall.* ✱ Nepal 873
The Box-leaved Cotoneaster.

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App. i. *Species of Cotoneáster not yet introduced.* - - 873
C. bacillàris *Wall*
C. obtùsa *Wall.*

XVI. *AMELA′NCHIER* Med. ‡ 673. 874
The Amelanchier.
Méspilus L.
Pýrus W.
Arònia Pers.
Cratæ`gus Lam.
Sórbus Crantz.

1. vulgàris *Mœnch.* ‡ Europe f. 626. 874
The common Amelanchier.
Méspilus Amelánchier *L.*
Pýrus Amelánchier *Willd.*
Arònia rotundifòlia Pers.
Cratæ`gus rotundifòlia Lam.
Sórbus Amelánchier *Crantz.*
Alisier Amelanchier, Amelanchier des Bois, Néflier à Feuilles rondes, Fr.
Felsenbirne, Ger.

2. (v.) Botryàpium *Dec.* ‡ N. America pl. 160, 161. fig. 627, 628. 874
The Grape-Pear, *or Snowy-blossomed*, Amelanchier.
Méspilus canadénsis L.
Méspilus arbòrea Michx.
Cratæ`gus racemòsa Lam.
Pýrus Botryápium Pers.
The Canadian Medlar, Snowy Mespilus, June Berry, Wild Pear Tree.
Alisier de Choisy, Alisier à Grappes, Fr.
Traubenbirne, Ger.

3. (v.) sanguínea *Dec.* ‡ North America fig. 630, 631. 875
The blood-coloured Amelanchier.
Pýrus sanguínea Pursh.
Arònia sanguínea Nutt.
Méspilus canadénsis γ rotundifòlia Michx.

4. (v.) ovàlis *Dec.* ‡ North America fig. 632. 876
The oval-*leaved* Amelanchier.
Cratæ`gus spicàta Lam.
Méspilus Amelánchier *Walt.*
A. *parviflòra* Doug. MSS.
Méspilus canadénsis var. α ovàlis Michx.
Pýrus ovàlis Willd.
Arònia ovàlis Pers.
Amelanchier du Canada, Alisier à E′pi, Fr.
Rundblättrige Birne, Ger.
Variety ‡ - - - 876
2 subcordàta *Dec.* ‡
Arònia subcordàta Raf.
Màlus microcárpa Raf.
3 semi-integrifòlia *Hook.* ‡

5. (v.) flórida *Lindl.* ‡ North America fig. 633, 634. 876
The flowery Amelanchier.
Variety - - - - 877
2 parvifòlia ‡
A. *parvifòlia* Hort. Soc. Gard.

XVII. *ME′SPILUS Lindl.* ‡ 673. 877
The Medlar.
Méspilus sp. of Lin. and others.
Mespilóphora sp. Neck.

Page
1. germánica *L.* ‡ Europe pl. 162. 877
The German, *or common,* Medlar.
Varieties - - - 878
1 sylvéstris *Mill. Dict.* ‡
2 strícta *Dec.* ‡
3 diffùsa *Dec.* ‡
Cultivated Varieties.
1. Blake's large-fruited Medlar.
2. Dutch Medlar.
3. Nottingham, or common, Medlar.
4. The stoneless Medlar.

2. Smíth*ii* Dec. ‡ ..... pl. 163. 878
Smith's Medlar.
M. *grandiflòra* Sm.
M. *lobàta* Poir.

XVIII. PY'RUS *Lindl.* ‡ ✻ 673. 879
THE PEAR TREE.
P*y̆rus*, M*àlus*, and S*órbus*, Tourn.
P*y̆rus* and S*órbus* L.
Pyróphorum and *Apyróphorum* Neck.

§ i. *Pyróphorum* Dec. ‡ - 880

1. commùnis *L.* ‡ Eur. pl. 164, 165. 880
The common Pear Tree.
P. A'*chras* Gærtn.
P. *sylvéstris* Dod.
Pyráster Ray.
Poirier, Fr.
Gemeine Birne, Birnebaum, Ger.
Pero, Ital.
Pera, Span.
Gruschka, Russian.
Varieties ‡ - - 880
1 A'chras *Wallr.* ‡
2 Pyráster *Wallr.* ‡
3 fòliis variegàtis ‡
4 frúctu variegàto ‡
5 sanguinolénta ‡
The sanguinole Pear.
6 flòre pléno ‡
Poire de l'Arménie Bon Jard.
7 jáspida ‡
Bon Chrétien à Bois jaspé Bon Jard.
8 satìva *Dec.* ‡
Varieties most deserving of Cultivation, selected from the Hort. Soc. Cat. of Fruits - 881
Beurré Diel.
Beurré de Rans.
Bezi de la Motte.
Glout Morceau. pl 166.
Napoléon.
Swan's Egg.
Scotch Pears recommended by Mr. Gorrie, as Trees adapted for Landscape Scenery - 881
The Benvie.
The Golden Knap.
The Elcho.
The busked Lady.
The Pow Meg.

2. (c.) salvifòlia *Dec.* ‡ France 888
The Sage-leaved, *or Aurelian,* Pear Tree.
Poirier Sauger D'Ourch.

3. (c.) nivàlis *L. fil.* ‡ Austria - 888
The snowy-*leaved* Pear Tree.

Page
4. (c.) sinàica *Thouin.* ‡ Mount Sinai pl. 167. 889
The *Mount* Sinai Pear Tree.
P. *Sinài* Desf.
P. *pérsica* Pers.
The Mount Sinai Medlar.

5. (c.) salicifòlia *L.* ‡ Siberia - 889
The Willow-leaved Pear Tree.

6. (c.) elæagnifòlia *Pall.* ‡ A. Minor 889
The Oleaster-leaved Pear Tree.
P. *orientàlis* Horn.

7. (c.) amygdalifórmis *Vil.* ‡ - 889
The Almond-shaped Pear Tree.
P. *sylvéstris* Magnol Bot.
P. *salicifòlia* Lois.

8. sinénsis *Lindl.* ‡ China pl. 168. 889
The Chinese Pear Tree.
P*y̆rus commùnis* Lois.
P. *sínica* Royle.
Ri vulgo Nas, Japanese.
The sandy Pear, Snow Pear, Sand Pear.
Sha lee, Chinese.

9. bollwylleriàna *Dec.* ‡ France pl. 169. 890
The Bollwyller Pear Tree.
P. *Pollvèria L.*
P. *auriculàris* Knoop.

10. crenàta *Don.* ‡ Nepal f. 638, 639. 890
The notched-*leaved* Pear Tree.

11. variolòsa *Wall.* ‡ Nepal pl. 170. 891
The variable-*leaved* Pear Tree.
P. Páshia *Ham.*

App. i. *Species of* P*y̆rus belonging to the Section Pyróphorum, and not yet introduced.* 891
P. cuneifòlia *Gus.*
P. parviflòra *Desf.*
P. *sylvéstris crética* C. Bauh.
P. Michaúx*ii* Bosc.
P. índica *Colebr.*

§ ii. *Màlus.* ‡ - - 891

12. *M*àlus *L.* ‡ Eur. pl. 171, 172. 891
The *common, or wild,* Apple Tree.
P. M*àlus mìtis* Wallr.
M*àlus commùnis* Dec.
Pommier commun, Fr.
Gemeine Apfelbaum, Ger.

13. (*M.*) acérba *Dec.* ‡ Europe - 892
The sour-*fruited* Apple, *or common Crab Tree.*
P*y̆rus* M*àlus austèra* Wallr.
M*àlus acérba* Merat.
M*àlus commùnis sylvéstris* Desf.
M*àlus sylvéstris* Fl. Dan.
P. M*àlus* Sm.
Pommier sauvageon, Fr.
Holzapfelbaum, Ger.

14. (*M.*) prunifòlia *W.* ‡ Siberia - 892
The Plum-tree-leaved Apple Tree, *or Siberian Crab.*
P. M*àlus β* Ait.
M*àlus hy̆brida* Desf.

15. (*M.*) baccàta *L.* ‡ Siberia - 892
The berry-*like-fruited* Apple Tree, *or Siberian Crab.*
M*àlus baccàta* Desf.

Page
16. (*M.*) dioíca *W.* ♆ ..... - - 892
The diœcious-*sexed* Apple Tree.
P. *apétala* Münch.
Màlus dioíca Audib.

17. (*M.*) astracánica *Dec.* ♆ Persia 893
The Astrachan Apple Tree.
Màlus astracánica Dum.

Varieties of P. *Màlus cultivated for their Fruit.* - - 893
The Red Astrachan.
The White Astrachan.
The transparent Crab of Moscow.
The Black Crab.
The Court pendu plat.
The Lincolnshire Holland Pippin.
The Tulip Apple.
The Violet Apple.
The Cherry Crab.
A subvar. of P. (M.) *baccàta.*
The Supreme Crab.
Bigg's Everlasting Crab.

18. coronària *L.* ♆ North America pl. 174. 908
The garland-*flowering* Apple Tree.
Màlus coronària Mill.
Crab Apple, Sweet-scented Crab, Amer.

19. (c.) angustifòlia *Ait.* ♆ Carolina pl. 175. 909
The narrow-leaved Apple Tree.
P. *coronària* Wang.
Màlus sempervìrens Desf.
P. *pùmila* Hort.

20. spectábilis *Ait.* ♆ China pl. 176. 909
The showy-*flowering wild* Apple Tree, *or Chinese Crab Tree.*
Màlus spectábilis Desf.
Màlus sinénsis Dum.

App. i. *Additional Species of* Pỳrus *belonging to the Section* Màlus. - 909
P. quinqueflòra *Hamilt.*
P. Sieversii Led.
P. *nov. sp.* Sievers.

§ iii. A`*ria* Dec. ♆ - - 910

21. *A*`ria *Ehrh.* ♆ Europe - - 910
The White Beam Tree.
*Cratæ`gus* A`*ria var.* α L.
Méspilus A`*ria* Scop.
Sórbus A`*ria* Crantz.
A`*ria Theophrásti L'Obel.*
White Wild Pear, White Leaf Tree, Red Chess Apple, Sea Ouler, Cumberland Hawthorn, Gerard.
Alisier Allouchier, Alisier blanc, Fr.
Mehlbeerbaum, Mehlbaum, Ger.
Aria, Sorba pilosa, Ital.
Mostaco, Span.
Axelbeer, Danish.
Oxilbear, Swedish.
Varieties ♆ - - 910
1 obtusifòlia *Dec.* ♆
P. A. *ovàlis* Hort.
2 acutifòlia *Dec.* ♆
Cratæ`gus longifòlia N. Du Ham.
? P. *alpìna* Willd.
3 undulàta *Lindl.* ♆ pl. 177.
4 angustifòlia *Lindl.* ♆
5 rugòsa *Lindl.* ♆
6 crética *Lindl.* ♆
P. A. *rotundifòlia* Hort.
P. *græ`ca* Hort.
7 bullàta *Lindl.* ♆
P. A. *acuminàta* Hort.

22. (*A.*) intermèdia *Ehrh.* ♆ Europe 912
The intermediate White Beam Tree.
*Cratæ`gus* A`*ria* β L.
Cratæ`gus scándica Wahl
Cratæ`gus suécica Ait.
Alisier de Fontainebleau, Fr.
Schwedischer Mehlbaum, Ger.
Varieties ♆ - - 912
1 latifòlia *Dec.* ♆
Cratæ`gus latifòlia Poir.
Sórbus latifòlia Pers.
Cratæ`gus dentàta Thuil.
2 angustifòlia *Dec.* ♆ fig. 640.
P. *edùlis* Willd.

23. (*A.*) vestìta *Wall.* ♆ Nepal pl.178. 912
The clothed White Beam Tree.
Pỳrus nepalénsis Hort.
Sórbus vestìta Lodd.

App. i. *Additional Species of* Pỳrus *belonging to the Section* A`*ria.* - 913
P. kamaonénsis *Wall.*
P. lanàta *D. Don.*

§ iv. *Torminària* Dec. ♆ - 913

24. torminàlis *Ehrh.* ♆ Europe pl. 179. 913
The griping-*fruited* Service Tree.
Cratæ`gus torminàlis L.
Sórbus torminàlis Crantz.
The Maple-leaved Service Tree.
Alisier des Bois, Fr.
Elzbear Baum, Ger.

App. i. *Other Species of* Pỳrus *belonging to the Section Torminària.* - 915
P. rivulàris *Doug.* fig. 642, 643.

§ v. *Eriólobus* Dec. ♆ - 915

25. trilobàta *Dec.* ♆ Mount Lebanon 915
The three-lobed-*leaved* Pear Tree.
Cratæ`gus trilobàta Labill.

§ vi. *Sórbus* Dec. ♆ - 915

26. auriculàta *Dec.* ♆ Egypt - 915
The auricled Service Tree.
Sórbus auriculàta Pers.

27. pinnatífida *Ehrh.* ♆ Britain. pl. 180. 915
The pinnatifid-*leaved* Service Tree.
Sórbus hýbrida L.
Pỳrus hýbrida Sm., not of Willd.
The Bastard Service Tree.
Varieties ♆ - - - 916
2 lanuginòsa ♆
3 péndula ♆
Sórbus hýbrida péndula Lodd.
4 arbúscula *Dec.* ♆

28. aucupària *Gærtn.* ♆ Europe pl.181. 916
The Fowler's Service Tree, *or Mountain Ash.*
Sórbus aucupària L.
Méspilus aucupària All.
Quicken Tree, Quick Beam, Wild Ash, Wild Service, Wicken Tree, Rowan

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Tree, Rowne Tree, Roan Tree, Roddan, Routry, Mountain Service, Witchen, Wild Sorb, Wichen, Whitten, Wiggen Tree.
Sorbier des Oiseleurs, Sorbier des Oiseaux, Fr.
Vogel Beerbaum, Ger.
Sorbo Salvatico, Ital.
Varieties ‡ - - - 916
2 frúctu lùteo ‡
3 fòliis variegàtis ‡
4 fastigiàta ‡

29. americàna *Dec.* ‡ North America pl. 182. 920
The American Service.
Sórbus americàna Pursh.
Sórbus americàna var. β Michx.

30. microcárpa *Dec.* ‡ North America 921
The small-fruited Service.
Sórbus aucupària α Michx.
Sórbus micrántha Dum.
Sórbus microcárpa Pursh.

31. *S*órbus *Gærtn.* ‡ Barbary pl. 183. 921
The True Service.
Sórbus doméstica L.
Pỳrus doméstica Sm.
The Whitty Pear Tree.
Cormier, Sorbier cultivé, Fr.
Speyerlingsbaum, Sperberbaum, Ger.
Sorbo, Ital.
Varieties ‡ - - 921
2 malifórmis *Lodd.* ‡
La Corme-Pomme, Fr.
3 pyrifórmis *Lodd.* ‡
La Corme-Poire, Fr.

32. lanuginòsa *Dec.* ‡ ? Hungary pl. 184. 924
The woolly-*leaved* Service Tree.
P. *hýbrida lanuginòsa* Hort.
Sórbus lanuginòsa Kit.

33. spùria *Dec.* ‡ Kamtschatka pl. 185. fig. 645. 924
The spurious Service Tree.
P. *hýbrida* Mœnch.
Sórbus spùria Pers.
Méspilus sorbifòlia Poir.
P. *sorbifòlia* Bosc, not of Sm.
? P. *sambucifòlia* Cham.
Variety ‡ - - 925
2 péndula *Hort.* ‡
Sórbus hýbrida péndula Lodd.
P. *spùria sambucifòlia* Hort. Brit.

App. i. *Additional Species of* Pỳrus *belonging to the Section* Sórbus. - - 925
P. foliolòsa *Wall.*
P. hircìna *Wall.*
Other Sorts.

§ vii. *Adenórachis* Dec. ✻ - 925

34. *a*rbutifòlia *L. fil.* ✻ North America fig. 646. 925
The Arbutus-leaved Aronia.
Cratæ`gus pyrifòlia Lam.
Arònia pyrifòlia Pers.
? *Cratæ`gus serràta* Poir.
Méspilus arbutifòlia Schmidt.
Varieties ✻ - - 926
2 intermèdia *Lindl.* ✻
3 serótina *Lindl.* ✻
4 pùmila ✻ f. 647, 648.
Méspilus pùmila Lodd.

35. (*a.*) melanocárpa *W.* N. America fig. 649. 926
The black-fruited Aronia.
P. *arbutifòlia β* Willd.
Arònia arbutifòlia Pers.
Variety ✻ - - 927
2 subpubéscens *Lindl.* ✻

36. (*a.*) floribúnda *Lindl.* ✻ North America - - - 927
The abundant-flowered Aronia.

37. (*a.*) depréssa *Lindl.* ✻ North America 927
The depressed Aronia.

38. pùbens *Lindl.* ✻ N. America - 927
The downy-*branched* Aronia.

39. grandifòlia *Lindl.* ✻ North America fig. 650. 928
The large-leaved Aronia.

§ viii. *Chamæméspilus* Dec. ✻ 928

40. Chamæméspilus *Lindl.* ✻ Europe fig. 651. 928
The dwarf Medlar.
Cratæ`gus Chamæméspilus Jacq.
Méspilus Chamæméspilus L.
Sórbus Chamæméspilus Crantz.
The Bastard Quince.

App. i. *Species of* Pỳrus *not sufficiently known.* - - - 923
P. alnifòlia *Lindl.*
P. tomentòsa *Dec.*
Màlus tomentòsa Dum.
P. rubicúnda *Hoffmans.*

XIX. *C*YDO'NIA *Tourn.* ‡ ✻ - 929
THE QUINCE TREE.
Pỳrus sp. L.

1. vulgàris *Pers.* ‡ Crete pl. 186. 929
The common Quince Tree.
Pỳrus Cydònia L.
C. *europæ`a* Sav.
Varieties ‡ - - 929
1 pyrifórmis *Hort.* ‡
2 malifórmis *Hort.* ‡
3 lusitánica *Du Ham.* ‡

2. sinénsis *Thouin.* ‡ China pl. 187. 931
The China Quince Tree.
Pỳrus sinénsis Poir.

3. japónica *Pers.* ✻ Japan fig. 952. 931
The Japan Quince Tree.
? *Pỳrus japónica* Thunb.
Chænomèles japónica Lindl.
Varieties ✻ - - 932
2 flòre álbo ✻
3 flòre semi-pleno ✻

App. i. *Other Species of* Cydònia. 932
C. *Sumbóshia* Hamilt.

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App. I. *Half-hardy Species of* Rosàceæ, *§ Pòmeæ, not belonging to any of the Genera containing hardy Species.* - - 932

Raphiólepis *Lindl.* - - 932
índica *Lindl.* fig. 653.
Cratæ`gus índica L.
salicifòlia *Lindl.* fig. 654.
rùbra *Lindl.*
Cratæ`gus rùbra Lour.
Méspilus sinénsis Poir.
phæostèmon *Lindl.*
R. *índica* Bot. Reg.
Laureìri Spreng.
Cratæ`gus índica Lour.
spiràlis *Don's Mill.*
Méspilus spiràlis Blume.

Eriobótrya *Lindl.* - - 933
japónica *Lindl.* fig. 655, 656.
Méspilus japónica Thunb.
Cratæ`gus Bibas *Lour.*
Lou-Koet, Japan.
ellíptica *Lindl.*
Méspilus Cùila *Ham. MSS.*
cordàta *Lindl.*
obtusifòlia Dec.
chinénsis *G. Don.*

Kagenéck*ia* Ruiz et Pav. - - 934
cratægöìdes *D. Don.* fig. 657.
K. cratægifòlia Lindl.
oblónga *R. et P.*
lanceolàta.
glutinòsa.

App. II. *Half-hardy Species of* Rosàceæ, *belonging to the Suborder Sanguisórbeæ.* 934

Margyricárpus setòsus *R. et P.* - - 934
E'mpetrum pinnàtum Lam. Dict.
Ancístrum barbàtum Lam. Ill.
Cercocárpus fothergillöìdes H. B. et Kunth. - 934
Bertolónia guieröìdes Moc. et Sesse.
Acæ`na *Vahl.* - - - 934
Potèrium *L.* - - - 935
spinòsum *L.*
caudàtum *Ait.* fig. 658.
Cliffórt*ia* - - - 935
ílicifòlia *L.*
obcordàta *L.*

Calycanthàceæ Lindl. ❋ 935

I. CALYCA'NTHUS *Lindl.* ❋ 935, 936
The Calycanthus, *or American Allspice.*
Calycánthi sp. L.
Büttnèria Du Ham., not of L.
Beurrèria Ehrh.
Bastèria Adams.
Pompadoúra Buchoz.
Calycante, Fr.
Kelch Blume, Ger.

1. flóridus *L.* ❋ N. America f. 659. 936
The flowery Calycanthus, *or Carolina Allspice.*
C. *stérilis* Walt.
Sweet-scented Shrub, in Carolina.
Common American Allspice.
Varieties ❋ - - - 936
1 oblóngus *Dec.* ❋
2 ovàtus *Dec.* ❋
3 asplenifòlius *Lodd.* ❋
4 fèrax *Lodd.* ❋
5 glaúcus *Lodd.* ❋
6 inodòrus *Lodd.* ❋
7 longifòlius *Lodd.* ❋
8 variegàtus *Lodd.* ❋

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2. (f.) glaúcus *Willd.* ❋ Carol. f. 660. 937
The glaucous-*leaved* Calycanthus, *or fertile-flowered American Allspice.*
C. *fértilis* Walt.
Variety - - - 937
2 oblongifòlius *Nutt.* ❋

3. lævigàtus *Willd.* ❋ N. Amer. f. 661. 937
The glabrous-*leaved* Calycanthus.
C. *fèrax* Michx.
C. *pennsylvánicus* Lodd.

II. CHIMONA'NTHUS *Lindl.* ❋ 935. 937
The Chimonanthus, *or Winter Flower.*
Meràtia Nees.
Calycánthi sp. L.

1. fràgrans *Lindl.* ❋ Japan f. 662. 938
The fragrant-*flowered* Chimonanthus.
Calycánthus præ`cox L.
Meràtia fràgrans Nees.
O'bai, or *Róbai*, Kæmpf.
The Winter Flower.
Calycante de Japon, Fr.
Japanische Kelch Blume, Ger.
Varieties ❋ - - 938
2 grandiflòrus *Lindl.* ❋ f. 663.
3 lùteus *Hort.* ❋

Granatàceæ D. Don. ♣ ❋ ❋ ⊔ 939

I. *PU`NICA Tourn.* ♣ ❋ ❋ ⊔ - 939
The Pomegranate Tree.
The Carthaginian Apple.
Grenadier, Gr.
Granate, Ger.
Melograno, Ital.
Granados, Span.

1. *G*ranàtum *L.* ♣ Asia - - 939
The *common* Pomegranate Tree.
Varieties - - - 939
1 rùbrum *Dec.* ♣ f. 664.
2 r. flòre plèno *Trew.* ❋
3 albéscens *Dec.* ❋
4 a. flòre plèno *Dec.* ❋
5 flàvum *Hort.* ❋

2. (*G.*) nàna *L.* ❋ ⊔ North America fig. 665. 942
The dwarf Pomegranate.
P. *americàna nàna* Tourn.
P. *Granàtum nànum* Pers.

Onagràceæ Lindl. ✱ ⊔ ✱ ⌋ 942

§ Fuchsi*e`æ*. ✱ ⊔ ✱ ⌋

Fúchs*ia* L. ✱ ⊔ ✱ ⌋ - - - 944
microphÿlla *H. B. et Kunth.* ✱ ⊔ fig. 666.
thymifòlia *H. B. et Kunth.* ✱ ⊔
ròsea *Ruiz et Pav.* ✱ ⊔
F. lyciöìdes Bot. Reg.
parviflòra *Lindl.* ✱ ⊔
F. ovàta Moc. et Sesse.
arboréscens *Sims.* ♣ ⊔
F. racemòsa Moc. et Sesse.
F. amæ`na Hort.
F. hameliöìdes Moc. et Sesse.

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grácilis *Lindl.* ✹ ⊔
F. decussàta Grah.
var. 2 multiflòra *Lindl.* ✹ ⊔
macrostèmon *Ruiz et Pav.* ✹ ⊔
var. 2 tenélla *Dec.* ⊔ ✹
F. grácilis var. tenélla Lindl.
cónica *Lindl.* ✹ ⊔
virgàta *Swt.* ✹ ⊔
coccínea *Ait.* ✹ ⊔ fig. 667.
F. péndula Salisb.
F. magellánica Lam.
Nahùsia *coccínea* Schneevoogt.
Skínnera coccínea Mœnch.
apétala *Ruiz et Pav.* ✹ ⊔
díscolor *Lindl.* ✹ ⊔
bacillàris *Lindl.* ✹ ⊔
hýbrida *Swt.* ✹ ⊔
globòsa *Hort.* ✹ ⊔
var. 2 longiflòra *Hort.* ✹ ⊔
longiflòra *Hort.* ✹ ⊔
F. longipedunculàta Beaton.
speciòsa *Hort.* ✹ ⊔
grandiflòra *Hort.* ✹ ⊔
præ'cox *Hort.* ✹ ⊔
Thompsònii Hort. ✹ ⊔
excorticàta *L. fil.* ✹ ⊔ fig. 668.
Skínnera excorticàta Forst.
Other Varieties

Lythràceæ. ✹ ▭ ✹ ⊔ 945

Heìmia ✹ ⊔ - - - - 945
salicifòlia *Link et Otto.* ✹ ⊔ fig. 669.
Nesæ'a salicifòlia H. B. et Kunth.
Lýthrum flávum Spreng.
myrtifòlia *Hort. Berol.* ✹ ⊔
Lýthrum apétalum Spreng.
linearifòlia *Hort.* ✹ ⊔
H. salicifòlia var.
syphilítica *Dec.* ✹ ⊔
Lagerstrœ'mia ✹ ▭ - - - 945
índica *L.* ✹ ▭ fig. 670.
parvifòlia *Roxb.* ✹ ▭
regìnæ *Roxb.* ✹ ▭

Tamaricàceæ. ⚘ - 946

I. *TA'MARIX* *Desv.* ⚘ - 946, 947
THE TAMARISK.
The species of Támarix *of authors that have* 4 *stamens and* 5 *stamens.*
Tamaris, Fr.
Tamarisken, Ger.

1. gállica *L.* ⚘ France - fig. 671. 947
The French Tamarisk.
T. *narbonénsis* Lob.
Tamaríscus gállicus All.
Tamaríscus pentándrus Lam.
Varieties ⚘ - - 948
1 súbtilis *Ehrenberg* ⚘
2 narbonénsis *Ehrh.* ⚘
3 nilótica *Ehrh.* ⚘
4 arbòrea *Sieb.* ⚘
5 manifera *Ehrh.* ⚘
6 heterophýlla *Ehrh.* ⚘
7 libanótica *Lodd.* ⚘
The Rosemary-like Tamarisk.

App. i. *Other hardy Species or Varieties of* Támarix. ⚘ - - 948
T. tetrándra *Pal.* ⚘
T. *gállica* Habl.
T. láxa *Willd.* ⚘
T. elongàta *Led.* ⚘
T. grácilis *Willd.* ⚘
T. híspida *Willd.* ⚘
T. *pentándra var.* Pall.
T. *gállica var. β* Willd.
T. *tomentòsa* Smith.
T. *canéscens* Desv.
T. ramosíssima *Led.* ⚘
T. *gállica* Sievers.
T. Pallàsii Desv. ⚘
T. *pentándra* Pall.
T. *gállica* Bieb.
T. *paniculata* Stev.
T. cupressifórmis *Led.* ⚘
T. parviflòra *Dec.* ⚘
T. tetrágyna *Ehrenb.* ⚘
T. effùsa *Ehrenb.* ⚘

App. ii. *Half-hardy Sorts of* Támarix. 949
T. africàna *Poir.*
T. *gállica var. γ* Willd.
T. canariénsis *Willd.*
T. pycnocárpa *Dec.*
T. passerinöides *Del.*
var. 1 divaricàta *Ehrh.*
2 Hammònis Ehrh.
3 macrocárpa *Ehrh.*
Other Species or Sorts.

II. MYRICA'RIA *Desv.* ⚘ 946. 949
THE MYRICARIA.
The species of Támarix *of authors that have monadelphous stamens.*

1. germánica *Desv.* ⚘ Europe f. 672. 949
The German Myricaria, *or German Tamarisk.*
Támarix germánica L.
Tamaríscus germánicus Lob.
Tamaríscus decándrus Lam.
Támarix decándra Mœnch.
Tamaris d'Allemagne, Fr.
Deutschen Tamarisken, Ger.

2. dahùrica *Dec.* ⚘ Siberia - 949
The Dahurian Myricaria.
Támarix dahùrica Willd.

App. i. *Other Sorts of Myricària not yet introduced.* - - 950
M. squamòsa *Desv.*
? *M. dahùrica var.*
M. longifòlia *Dec.*
Támarix germánica Pall.
Támarix decándra Pall.
Támarix longifòlia Willd.
M. linearifòlia Desv.
M. herbàcea *Desf.*
Támarix germánica subherbàcea Pall.
M. bracteàta *Royle.*
M. élegans *Royle.*

Philadelphàceæ. ⚘ ⚘ ⊔ ✶ 950

I. *P*HILADE'LPHUS *L.* ⚘ - 950, 951
THE PHILADELPHUS, *or Mock Orange.*
Syrínga *Tourn., not of L.*
Philadelphus, Fr.
Pfeifenstrauch (*Pipe Shrub*), Ger.
Pipe Privet, Gerard.
The Syringa of the gardens.

§ i. *Stems stiff and straight. Flowers in Racemes.* - - 951

1. coronàrius *L.* ⚘ South Europe fig. 673. 951
The garland Philadelphus.
Syrínga *suavèolens* Mœnch.
Varieties ⚘ - - 951
1 vulgàris *Schkuhr.* ⚘
2 nànus *Mill.* ⚘
3 flòre plèno *Lodd.* ⚘
4 variegàtus *Lodd* ⚘

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2. (c.) inodòrus *L.* ✲ Carolina f. 674. 952
The scentless-*flowered* Philadelphus.
Syrínga *inodòra* Mœnch.
P. *láxus* in many English gardens.

3. (c.) Zeýheri Schrad. ✲ N. Amer. 952
Zeyher's Philadelphus.

4. verrucòsus *Schrad.* ✲ North America f. 675. 952
The warted Philadelphus.
P. *grandiflòrus* Lindl.

5. (v.) latifòlius *Schrad.* ✲ N. America fig. 676. 953
The broad-leaved Philadelphus.
P. *pubéscens* Cels.

6. (v.) floribúndus *Schrad.* ✲ N. Amer. 953
The abundant-flowered Philadelphus.

§ ii. *Stems more slender, rambling, twiggy, and loose. Flowers solitary, or 2 or 3 together.* - - - - 954

7. láxus *Schrad.* ✲ N. Amer. f. 677. 954
The loose-*growing* Philadelphus.
P. *húmilis* Hort.
P. *pubéscens* Lodd.

8. (l.) grandiflòrus *Willd.* ✲ N. Amer. 954
The large-flowered Philadelphus.
P. *inodòrus* Hort.
P. *láxus* Lodd.

9. hirsùtus *Nutt.* ✲ North America. f. 678, 678 a. 954
The hairy-*leaved* Philadelphus.
P. *villòsus* and P. *grácilis* Lodd.

10. tomentòsus *Wall.* ✲ Nepal - 955
The woolly-*leaved* Philadelphus.
P. *nepalénsis* Lodd.
? P. *triflòrus* Royle.

II. DECUMA'RIA *L.* ✲ ⊔ ✳ 950. 955
THE DECUMARIA.
Forsýthia Walt., not of Vahl.

1. bárbara *L.* ✳ Carolina f. 679, 680. 955
The barbarous Decumaria.
D. radicans Mœnch.
D. Forsýthia Michx.
D. prostràta Lodd.
Variety ✳ - - - 955
2 sarmentòsa *Dec.* ✳
D. sarmentòsa Bosc.
Forsýthia scándens Walt.

App. I. *Half-hardy ligneous Plants of the Order Philadelphàceæ.* - 956

Deùtzia scàbra *Thunb.* ✲ ⊔ f. 681. 950.
D. corymbòsa *R. Br.*
Philadélphus corymbòsus Wall.
D. stamínea *R. Br.*
Philadelphus stamíneus Wall.
D. Brunònia Wall.
Leptospérmum scábrum Wall.

Myrtàceæ. ♀ ⊔ ✲ ⊔ ✹ ⊔ 956

Sect. I. MELALEU'CEÆ. ♀ ⊔ ✲ ⊔ - 956

Tristània neriifòlia *R. Br.* ✲ ⊔ - fig. 682. 956
Melaleùca neriifòlia Sims.
Melaleùca salicifòlia Bot. Rep.
Beaufórtia decussàta *R. Br.* ✲ ⊔ - fig. 633. 957
Calothámnus villòsa *R. Br.* ✲ ⊔ - fig. 631. 957

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C. grácilis *R. Br.* ✲ ⊔ - - - 957
C. quadrífida *R. Br.* ✲ ⊔ - - - 957
C. clavàta *Cunningh.* ✲ ⊔ - - - 957
Melaleùca squàmea *Labill.* ✲ ⊔ - - : 957
M. linearifòlia *Sm.* ✲ ⊔ - - fig. 685. 957
Metrosidèros hyssopifòlia Cav.
M. pulchélla *R. Br.* ✲ ⊔ - - - 957
M. *hypericifòlia* *Sm.* ✲ ⊔ : - fig. 687. 957
M. squarròsa *Sm.* ✲ ⊔ - - - - 957
Eudésmia tetragòna *R. Br.* ♀ ⊔ - fig. 686. 958

Sect. II. EULEPTOSPE'RMEÆ. ♀ ⊔ ✹ ⊔ 958

Eucalýptus resinífera *Sm.* ♀ ⊔ - fig. 688, 689. 691. 958
The Iron Bark Tree.
E. robústa *Sm.* ♀ ⊔ - - - pl. 188. 959
The Stringy Bark Tree.
E. viminàlis *Labill.* ♀ ⊔ - fig. 692, 693. 959
E. *amygdálina* *Labill.* ♀ ⊔ - fig. 694, 695. 959
E. *piperìta* *Sm.* ♀ ⊔ - fig. 696, 697. 959
The Blue Gum Tree.
E. cordàta *Labill.* ♀ ⊔ - - fig. 698. 959
E. pulverulénta *Sims.* ♀ ⊔ - - fig. 697. 959
E. *cordàta* Hort. Berol.
E. diversifòlia *Bonpl.* ♀ ⊔ - - - 959
E. *connàta* Dum.
E. *piperìta* Hort. Berol.
E. *heterophýlla* Swt.
E. *angustifòlia* Hort.
Several other Species of Eucalýptus - - - 959
Angóphora cordifòlia *Cav.* ✹ ⊔ - - fig. 699. 960
Metrosidèros híspidus Sm.
A. lanceolàta *Cav.* ✹ ⊔ - - fig. 702. 960
The Apple Tree of New Holland.
Metrosidèros spléndens Gærtn.
Callistèmon salígnus *Dec.* ✹ ⊔ - - - 960
Metrosidèros salígnus Sm.
C. lanceolàtus *Dec.* ✹ ⊔ - - fig. 700. 960
Metrosidèros lanceolàtus Sm.
Metrosidèros cítrina Bot. Mag.
Metrosidèros *corifòlius* *Vent.* ✹ ⊔ - fig. 705. 961
The Coris-leaved Iron Wood.
Leptospérmum ambíguum Sm.
Leptospérmum grandifòlium *Sm.* ✹ ⊔ - fig. 701. 961
L. lanígerum *Ait.* ✹ ⊔ - - - 961
Philadelphus lanígerus Ait.
Billòtia marginàta *R. Br.* ✹ ⊔ - - - 961
Leptospérmum marginàtum Labill.
B. flexuòsa *D. Don.* ✹ ⊔ - - - 961
Fabrícia *myrtifòlia* *Gærtn.* ✹ ⊔ - - - fig. 703. 961
F. stricta *Lodd.* ✹ ⊔ - - - - 961
Bæ'ckia virgàta *Andr.* ✹ ⊔ - - fig. 704. 961
Leptospérmum virgàtum Forsk.
Melaleùca virgàta L. fil.

Sect. III. *MY'RTEÆ.* ♀ ⊔ ✹ ⊔ 961

*P*sídium Cattley*ànum* Sabine. ♀ ⊔ - fig. 706. 961
Cattley's Guava.
P. *coriàceum* Marsh.
P. *chinénse* Lodd.

*Mý*rtus communis *L.* ✹ ⊔ - - 961
The common Myrtle.
Varieties ✹ ⊔ - - 963

§ i. *Melanocárpa* Dec. ✹ ⊔ - 963
1 romàna *Dec.* ✹ ⊔
The common *broad-leaved, or* Roman, Myrtle.
2 tarentìna *Mill. Jc.* ✹ ⊔
The Tarentum, *or Box-leaved,* Myrtle.
3 itálica *Mill. Dict.* ✹ ⊔
The Italian, *or upright,* Myrtle.
4 bæ'tica *Mill. Dict.* ✹ ⊔
The Andalusian, *or Orange-leaved,* Myrtle.
5 lusitánica *L.* ✹ ⊔
The Portugal Myrtle.
M. *acùta* Mill. Dict.
Subvar. ? The Nutmeg Myrtle ✹ ⊔
6 bélgica *Mill. Dict.* ✹ ⊔
The broad-leaved *Dutch Myrtle.*
Subvar. The double-flowered Myrtle.
7 mucronàta *L.* ✹ ⊔
The *Rosemary, or Thyme-leaved* Myrtle.

§ ii. *Leucocárpa* Dec. ✹ ⊔ - 963
8 leucocárpa *Dec.* ✹ ⊔
The white-berried Myrtle.

§ iii. *Garden Varieties.* ✹ ⊔ - 963
1. Gold-striped broad-leaved Myrtle ✹ ⊔

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2. Broad-leaved Jew's Myrtle ✱ └┘
3. Gold-striped Orange-leaved Myrtle ✱ └┘
4. Silver-striped Italian Myrtle ✱ └┘
5. Striped-leaved Myrtle ✲ └┘
6. Silver-striped Rosemary leaved Myrtle ✱ └┘
7. Silver-striped Nutmeg Myrtle ✱ └┘
8. Cock's-comb, or Bird's-nest Myrtle ✱ └┘
9. Spotted-leaved Myrtle ✱ └┘
M. tomentòsa *Ait.* ✱ └┘ - - fig. 707. 964
M. *canéscens* Lour.
M. tenuifòlia *Sm.* ✱ └┘ - - - - 964

Sect. IV. CHAMÆLAUCIE`Æ. ✱ └┘ - 964

Chamælaúcium ciliàtum *Desf.* ✱ └┘ - - 964
Cálythrix glàbra *R. Br.* ✱ └┘ - fig. 708. 964
C. ericöìdes *Cunningh.* ✱ └┘ - - - 964
Darwínia fasciculàris *Rudge.* ✱ └┘ - - 964

Passifloràceæ. ⚘ ⚘ ▭ ⚘ └┘ 964

Passiflòra cærùlea *L.* ⚘ - - fig. 709. 964
var. 2 angustifòlia *Hort.* ⚘
3 glaucophýlla *Hort.* ⚘
4 Colvíllii Swt. ⚘
5 racemòsa *Hort.* ⚘
P. incarnàta *L.* ⚘ └┘ - - fig. 710. 965
The flesh-coloured Granadilla, *or May Apple.*
P. filiæfòlia *L.* ⚘ ▭ - - - 965
The Lime-tree-leaved Passion Flower.

Other Species or Varieties. - 965

Disémma adiantifòlia *Dec.* ⚘ └┘ - fig. 711. 965
Passiflòra adiantifòlia Bot. Mag.
Tacsònia pinnatistípula *Juss.* ⚘ └┘ - - 965
Passiflòra pinnatistípula Cav.

Crassulàceæ. ⚯ ✱ └┘ 965

Sèdum populifòlium *L.* ⚯ - - 965
The Poplar-leaved Sedum, *or Stonecrop.*
Anacámpseros populifòlia Haw.
Sempervìvum arbòreum *L.* ✱ └┘ - fig. 712. 965
The Tree Houseleek.

Mesembryàceæ. ✳ └┘ - 966

Mesembryánthemum *L.* - - - 966

Nitrariàceæ Lindl. ✲ ✳

I. NITRA`RIA *L.* ✲ ✳ - - 966
THE NITRA`RIA.

1. Schóberi L. ✲ Russia - - 966
Schober's Nitraria.
Varieties ✲ - - - 966
1 sibírica ✲ fig. 713.
N. sibírica Pall.
2 cáspica ✲ fig. 714.
N. cáspica Pall.

2. tridentàta *Desf.* ✳ Barbary - 967
The three-toothed *leaved* Nitraria.
Péganum retùsum Forsk.

Cactàceæ. ⚯ └┘ - 967

Opúntia vulgàris *Mill.* ⚯ └┘ - - - 967
The common Indian Fig, *or Prickly Pear.*
Cáctus Opúntia L.

Grossulàceæ Dec. ✲ ✶ 967

I. *RI`BES* L. ✲ ✶ - - 967, 968
THE RIBES.
Grossulària Tourn.
Chrysobótrya, *Calòbótrya*, *Coreósma*, and Rèbes, *Spach.*
Groseiller, Fr.
Johannisbeere, Ger.
Kruisbes, Dutch.
Uva Spina, Ital.
Grosella, Span.

§ i. *Grossulàriæ* Ach. Rich. ✲ - 968

A. *Flowers greenish white.*

1. oxyacanthöìdes *L.* ✲ Canada f.715. 968
The Hawthorn-*leaved* Gooseberry.

2. setòsum *Lindl.* ✲ N. Am. f.716. 969
The bristly Gooseberry.

3. triflòrum *W.* ✲ North America fig. 717. 969
The three-flowered Gooseberry.
R. *stamíneum* Horn.

4. (t.) níveum *Lindl.* ✲ North America fig. 718. 969
The snowy-*flowered Currant-like* Gooseberry.

5. (t.) Cynósbati *L.* ✲ Canada f. 719. 970
The Dog-Bramble Gooseberry.
R. ? *triflòrum var.*

6. (t.) divaricàtum *Dougl.* ✲ N. America fig. 720. 970
The spreading-*branched* Gooseberry.
R. ? *triflòrum var.*
R. ? *Grossulària var. triflòra subvar.*

7. (t.) irríguum *Dougl.* ✲ North America fig. 721. 971
The well-watered Gooseberry.
R. ? *triflòrum var.*

8. hirtéllum *Michx.* ✲ N. America 971
The slightly hairy-*branched* Gooseberry.

9. grácile *Michx.* ✲ North America 971
The slender-*branched* Gooseberry.

10. aciculàre *Smith* ✲ Siberia - - 971
The acicular-*spined* Gooseberry.
R. *U`va-crispa* Sievers.

11. Grossulària *L.* ✲ Europe - 972
The *common* Gooseberry.
R. *U`va-crispa* Œd. Fl. Dan.
Grossulària hirsùta Mill.
R. *U`va-crispa var.* 5 *satìva* Dec.
Feaberry, Cheshire and the N. of England.
Feabes, Norfolk.
Grozert, in Scotland.
Groseiller à Maquereau, Fr.
Griselle, in Piedmont.
Gemeine Stachelbeere, Ger.
Uva Spina, Ital.

Page
Varieties ⚘ - - - 972
2 Ùva-críspa *Sm.* ⚘
R. *Ùva-críspa* L.
Ùva-críspa Fuch.
Ùva-spìna Math.
R. *Ùva-críspa var.* 1 *sylvéstris* Berlandier.
3 spinosíssima *Berl. MSS.* ⚘
4 reclinàta *Berl. MSS.* ⚘
R. *reclinàtum* L.
Grossulària reclinàta Mill.
5 Besseriàna Berl. MSS. ⚘
R. *hÿbridum* Besser.
6 subinérmis *Berl. MSS.* ⚘
? R. *G. reclinàta subvar.*
7 macrocárpa *Dec.* ⚘
8 bracteàta *Berl. MSS.* ⚘
Other Varieties. ⚘
The Red Champagne. ⚘
Horseman's Green Gage. ⚘
The Red Rose. ⚘

a. *Sorts of Gooseberries belonging to this Division not yet introduced.* - - 974
R. saxòsum *Hook.*
R. *saxàtile* Dougl. MSS.
R. *triflòrum* Bigel.
R. rotundifòlium *Michx.*
R. caucásicum *Adams.*
? R. *G. Ùva-críspa subvar.*
R. cuneifòlium *R. et P.*
R. cucullàtum *Hook. et Arn.*

B. *Flowers red.*
12. speciòsum *Pursh.* ⚘ California fig. 722. 974
The showy-*flowered* Gooseberry.
R. *stamíneum* Sm.
R. *fuchsioìdes Fl. Mex.*
R. *triacánthum* Menzies.

a. *Sorts of Gooseberries not yet introduced belonging to this Subsection.* - - 975
R. Menzièsii Pursh.
R. *fèrox* Sm.
R. microphÿllum *H. B. et Kunth.*

§ ii. *Botrycárpum* Dec. ⚘ - 975
13. orientàle *Poir.* ⚘ Syria - - 975
The Eastern *Currant-like* Gooseberry.

14. saxátile *Pall.* ⚘ Dahuria - 976
The rock *Currant-like* Gooseberry.
? R. *alpìnum* Sievers.

15. Diacántha *L. fil.* ⚘ fig. 723. 976
The twin-prickled *Currant-like* Gooseberry.

16. lacústre *Poir.* ⚘ N. Amer. f. 724. 976
The lake-*side Currant-like* Gooseberry.
? R. *oxyacanthöìdes* Michx.
R. *echinàtum* Dougl. MS.

§ iii. Ribèsia *Dec.* ⚘ ✱ - 977
A. *Flowers greenish, or greenish yellow, or reddish; and Fruit, in a wild State, red.* - 977
17. rùbrum *L.* ⚘ Europe - - 977
The *common* red Currant.
R. *vulgàre* N. Du. Ham.
Groseiller common, Fr.
Gemeine Johannisbeere, Ger.
Roode Aallessen Boom, Dutch.
Varieties ⚘ - - - 977
1 sylvéstre *Dec.* ⚘
2 horténse *Dec.* ⚘
R. *rùbrum* Lois.

Page
3 cárneum *Berl. MSS.* ⚘
R. *rùbrum doméstícum* 2 *baccis cárneis* Wallr.
4 variegàtum *Dec.* ⚘
5 álbum *Desf.* ⚘
6 fòliis lùteo variegàtis *Du Ham.* ⚘
7 fòliis álbo variegàtis *Du Ham.* ⚘

18. (r.) alpìnum *L.* ⚘ Europe f. 725. 979
The alpine red Currant.
Varieties ⚘ - - - 979
1 stérile *Wallr.* ⚘
R. *dioìcum* Mœnch.
2 baccíferum *Wallr.* ⚘
3 pùmilum *Lindl.* ⚘ f. 726.
4 fòliis variegàtis *Hort.* ⚘

19. (r.) petræ̀um *Wulf.* ⚘ Carinthia fig. 727. 979
The rock red Currant.
R. *alpìnum* Delarb.
The woolly-leaved Currant.
The red Marsh-mallow-leaved Currant.

20. (r.) spicàtum *Robs.* ⚘ England fig. 728. 980
The spiked-*flowered* red, *or Tree*, Currant.

21. (r.) carpáthicum *Kit.* ⚘ Carpathian Mountains - - 980
The Carpathian red Currant.
R. *acérrimum* Rochel.

22. (r.) multiflòrum *Kit.* ⚘ Croatia fig. 729. 980
The many-flowered red Currant.
R. *spicàtum* Schultes.

23. (r.) procúmbens *Pall.* ✱ Siberia fig. 730. 981
The procumbent red Currant.
R. *polycárpon* Gmel.

24. (r.) prostràtum *L.* ✱ North America fig. 731. 981
The prostrate red Currant.
R. *glandulòsum* Ait.
Variety ✱ - - - 981
2 laxiflòrum ✱
R. *affìne* Dougl. MSS.
R. *laxiflòrum* Pursh.

25. (r.) resinòsum *Pursh.* ⚘ N. America fig. 732. 981
The resinous red Currant.

26. (r.) trífidum *Michx.* ✱ N. Amer. 981
The trifid-*calyxed* red Currant.

27. (r.) albinérvum *Michx.* ⚘ Canada 982
The white-nerved-*leaved* red Currant.

28. rìgens *Michx.* ⚘ Canada - 982
The stiff-*racemed* red Currant.

29. punctàtum *R. et P.* ⚘ Chili f. 733. 982
The dotted-*leaved* red Currant.

30. (p.) glandulòsum *R. et P.* ⚘ Chili 982
The glandular-*calyxed* red Currant.

Page
a. *Species or Varieties of* Ribes *belonging to the Subdivision* A *of the Section* Ribèsia, *which are not yet introduced.* - - 983

R. fràgrans *Pall.*
R. heterótrichum *Meyer.*
R. bracteòsum *Dougl.*
R. tubiflòrum *Meyer.*
R. tubulòsum *Eschscholtz*
R. macróbotrys *R. et P.*
R. albiflòrum *R. et P.*
R. ciliàtum *Willd.*
R. *jorulléns*e H. B. et Kunth.
R. hírtum *Thunb. et Bonpl.*
R. *frígidum* H. B. et Kunth.
R. campanulàtum *Thunb. et Bompl.*
R. *affine* H. B. et Kunth.
R. Kúnthii Berl.
R. multiflòrum H. B. et Kunth, not of Kit.
R. Takàre D. Don.
R. acuminàtum *Wall.*
R. villòsum *Wall.*

B. *Flowers greenish yellow, sometimes with the Tips of the Sepals and Petals red. Fruit Black.* 983

31. nìgrum *L.* ✽ Europe fig. 734. 983
The black Currant.
R. *ólidum* Mœnch
Capis Poivrier, Fr.
Schwartze Johannisbeere, Ger.
Varieties ✽ - - - 984
2 báccâ flávidâ *Gard. Mag.* ✽
3 báccâ víride *Hort.* ✽
4 fòliis variegàtis *Vilmorin.* ✽
Garden Varieties.

32. (n.) trìste *Pall.* ✽ Siberia 985
The sad-*coloured, or dark-blossomed*, black Currant.
R. *altàicum* Lodd.

33. (n.) flóridum *L'Hérit.* ✽ N. America fig. 735. 985
The flowery black Currant.
R. *nìgrum* 2 L.
R. *pennsylvánicum* Lam.
R. *recurvàtum* Michx.
Ribèsium *nìgrum, &c.* Dill.
Varieties ✽ - - 986
2 grandiflòrum *Hort.* ✽
3 parviflòrum *Hort.* ✽

34. (n.) inèbrians *Lindl.* ✽ N. America fig. 736. 986
The intoxicating black Currant.

35. cèreum *Dougl.* ✽ N. W. America fig. 737. 986
The waxy-*leaved black* Currant.

36. viscosíssimum *Pursh.* ✽ N. America fig. 738. 987
The very clammy *black* Currant.
Coreósma viscosíssima Spach.

37. hudsoniànum *Richardson.* ✽ North America - - - 987
The Hudson's *Bay black* Currant.
R. *petiolàre* Dougl.

38. glaciàle *Wall.* ✽ Nepal - - 987
The icy *black* Currant.

a. *Species or Varieties of* Ribes *belonging to the Division* B *of the Section* Ribèsia, *which have not yet been introduced* - - 987
R. Bieberstéinii Berl.
R. *caucásicum* Bieb.
R. viscòsum *R. et P.*

C. *Flowers deep red. Fruit black.*

39. sanguíneum *Pursh.* ✽ N. America fig. 739. 988
The bloody, *or red-flowered*, Currant.
R. *malvàceum* Sm.
Calobótrya sanguínea Spach.
Varieties ✽ - - - 988
2 glutinòsum *Benth.* ✽ f. 740.
R. *angústum* Dougl. MSS.
3 malvàceum *Benth.* ✽ f. 741.
4 àtro-rùbens *Hort.* ✽

a. *Species or Varieties of* Ribes *belonging to the Division* C *of the Section* Ribèsia, *which have not yet been introduced.* - - - 989

40. àtro-purpùreum *Meyer.* ✽ Siberia 989
The dark purple-*flowered* Currant.
Varieties ✽ - - 989
1 Flowers deep purple, &c. ✽
2 Leaves rather pubescent, &c. ✽
3 Flowers paler, &c. ✽

§ iv. *Symphócalyx* Dec. ✽ - 989

41. aúreum *Pursh.* ✽ N. Am. f. 742. 989
The golden-*flowered* Currant.
R. *palmàta* Desf.
Chrysobótrya revolùta Spach.
Varieties ✽ - - - 989
1 præ'cox *Lindl.* ✽
2 villòsum *Dec.* ✽
R. *longiflòrum* Fraser's Cat.
3 serótinum *Lindl.* ✽ f. 743.

42. (a.) tenuiflòrum *Lindl.* ✽ N. Amer. fig. 744. 990
The slender-flowered Currant.
R. *aúreum* Colla.
R. *flàvum* Berl.
R. *missouriénsis* Hort.
Chrysobótrya Lindleyàna Spach.
Varieties ✽ - - - 990
1 frúctu nìgro ✽
2 frútu lùteo ✽

43. (a.) flàvum *Coll.* ✽ - - 990
The yellow-*flowered* Currant.
R. *aúreum 3 sanguíneum* Lindl.
R. *palmàtum* Desf.
R. *aureum* Ker, but not of Pursh.
Chrysobótrya intermèdia Spach.

App. i. *A Classification of the Species and Varieties of* Ribes *in the Horticultural Society's Garden in* 1836. - - 990

*Escallon*iàceæ. ✽ ✸ ⌴ 992

I. *I'*TEA *L.* ✽ - - - - 992
The Itea.
Cedrèla Lour.
Diconángia Michx.

1. virgínica *L.* ✽ N. Amer. f. 745. 992
The Virginian Itea.

II. ESCALLO`N*IA* Mutis. ✸ ⌴ - 993
The Escallonia,
Stercóxylon R. et P.

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E. rùbra *Pers.* ✱ ⊔ - fig. 746. 993
Varieties ✱ ⊔ - - 993
1 glabriúscula *Hook. et Arn.* ✱ ⊔
2 albiflòra *Hook. et Arn.* ✱ ⊔
E. glandulòsa Bot. Cab.
3 pubéscens *Hook. et Arn.* ✱ ⊔

E. montevidénsis *Dec.* ✱ ⊔ fig. 747. 993
E. floribúnda var. β montevidénsis Schlecht.
E. bífida Link et Otto.
E. floribúnda *H. B. et Kunth.* ✱ ⊔ 994
E. resinòsa *Pers.* ✱ ⊔ - - - 994
Stereóxylon resinòsum R. et P.
E. pulverulénta *Pers.* ✱ ⊔ - - 994
Stereóxylon pulverulèntum R. et P.

Saxifràgeæ. ❀ ❀⊔ ❀⊔ 294

Tribe Hydra'ngeæ. ❀ ❀⊔ ❀⊔

I. HYDRA'NGEA *L.* ❀ ❀⊔ ❀⊔ 994
The Hydrangea.
Hydrángea and *Horténsia Juss.*

1. arboréscens *L.* ❀ North America fig. 748. 994
The arborescent Hydrangea.
Varieties ❀ - - - 995
1 vulgàris *Ser.* ❀
H. vulgàris Michx. and ? Pursh.
H. arboréscens Curt.
H. frutéscens Mœnch.
2 díscolor *Ser.* ❀

2. (a.) cordàta *Pursh.* ❀ North America fig. 749. 995
The cordate-*leaved* Hydrangea.

3. nívea *Michx.* ❀ North America fig. 750. 995
The snowy-*leaved* Hydrangea.
H. radiàta Walt., not of Sm.
Variety - - - 995
2 glabélla *Ser.*

4. quercifòlia *Bartram.* ❀ North America fig. 751. 995
The Oak-leaved Hydrangea.
H. radiàta Sm., not of Walt.

5. heteromálla *D. Don.* ❀ Nepal 996
The diverse-haired-*leaved* Hydrangea.

App. i. *Half-hardy Species of Hydrángea.* 996
H. Horténsia Sieb. ❀ ⊔ fig. 752.
The Chinese Guelder Rose.
H. horténsis Sm.
Horténsia opulöides Lam.
Horténsia speciòsa Pers.
Prímula mutábilis Lour.
Vibúrnum serràtum and *Vibúrnum tomentòsum* Thunb.
H. vestìta *Wall.* ❀ ⊔
H. altíssima *Wall.* ❀ ⊔

Umbellàceæ. ✱ ✱⊔ ✱⊔ 997

I. BUPLEU'RUM *Tourn.* ✱ ✱⊔ ✱⊔ - - - - - 997
The Bupleurum, *or Hare's Ear.*
Tenòria and *Bupréstis* Spreng.
Séseli Bauh. and Mor.
Bupliore, Oreille de Lièvre, Fr.
Hasenöhrlein, Ger.

1. fruticòsum *L.* ✱ S. Europe f. 753. 997
The shrubby Bupleurum.
Tenòria fruticòsa Spreng.
Bupréstis fruticòsa Spreng. Mag.
Séseli æthiópicum Bauh.
Séseli frùtex Mor.

App. i. *Half-hardy Species of the Genus Bupleùrum.* - - 998
B. gibraltáricum *Lam.* ✱ ⊔
B. *coriàceum* L'Hérit.
B. *oblíquum* Vahl.
B. *arboréscens* Jacq.
Tenòria coriacea Spreng.
B. *verticàle* Ort.
B. plantagíneum *Desf.* ✱ ⊔
Tenòria plantagínea Spreng.
B. canéscens *Schousb.* ✱ ⊔
B. frutéscens *L.* ✱ ⊔

Araliàceæ. ❀ ℒ - 998

I. ARA'LIA *L.* ❀ - - - 998
The Aralia, *or Angelica Tree.*
Aràlia sp. L.
Aràliæ vèræ Blum.

1. spinòsa *L.* ❀ N. America f. 754. 999
The spiny Aralia.
Aralie, Fr. and Ger.
Spikenard, N. Amer.
Other suffruticose Species of Aràlia. - 999

II. *HE'DERA Swartz.* ℒ - 998, 999
The Ivy.
Aràlia, sect. Gymnópterum Blum.
Hédera and *Aràlia sp.* L.
Lierre, Fr.
Ephen, Ger.

1. *Hèlix L.* ℒ Europe - - 1000
The *common* Ivy.
Varieties ℒ - - 1000
1 vulgàris *Dec.* ℒ f. 755.
2 canariénsis *Dec.* ℒ
H. *canariénsis* Willd.
? 3 chrysocárpa *Dec.* ℒ
H. *poética* C. Bauh.
H. *chrysocárpa* Dalech.
H. *Dionýsias* J. Bauh.
H. *Hèlix* Wall.
Additional Varieties in British Gardens.
4 fòliis argénteis *Lodd.* ℒ
The silver-*striped* Ivy.
5 fòliis aúreis *Lodd.* ℒ
The golden-*striped* Ivy.
6 digitàta *Lodd.* ℒ
The palmate, *or hand-shaped,* Ivy.
7 arboréscens *Lodd.* ℒ
The arborescent, *or Tree,* Ivy.

Hamamelidàceæ. ⚘ ❀ 1006

I. *HAMAME'LIS L.* ⚘ ❀ 1006, 1007
The Hamamelis, *or Wych Hazel.*
Trilòpus Mith.

1. virgínica *L.* ⚘ ❀ North America fig. 756, 757. 1007
The Virginian Hamamelis.
Virginische Zaubernuss, Ger.

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Varieties - - - 1008
2 parviflòra *Nutt.*
3 macrophýlla.
H. *macrophýlla* Pursh.

App. i. *Other Species, not yet introduced.* 1008
H. pérsica *Dec.*
H. chinénsis *R. Br.*

II. FOTHERGI'LL*A* L. ✽ 1007, 1008
The Fothergi'lla.
Hamamèlis L.

1. *a*lnifòlia *L.* ‡ North America 1008
The Alder-leaved Fothergilla.
F. Gárdeni Michx.
Hamamèlis monoíca L.
Varieties ✽ - - - 1008
1 obtùsa *Sims.* ✽ f. 759.
F. màjor Lodd.
F. alnifòlia L. fil.
2 acùta *Sims.* ✽
F. Gárdeni Jacq.
3 màjor *Sims.* ✽ f. 758.
4 serótina *Sims.* ✽

Cornàceæ. ‡ ✽ 1009

I. *CO'RNUS L.* ‡ - - 1009
The Dogwood.
Cornouiller, Fr.
Hartriegel, Ger.

§ i. *Nudiflòræ* Dec. ‡ ✽ - 1010

1. alternifòlia *L.* ✽ ‡ North America fig. 760. 1010
The alternate-leaved Dogwood.
C. *altérna* Marsh.

2. sanguínea *L.* ✽ North America fig. 761. 1010
The blood-*red-leaved, or common,* Dogwood.
C. *fœ'mina* Raii.
Virga sanguínea Matth.
Female Cornel, Dogberry Tree, Hound Tree, Hound's-berry Tree, Prickwood, Gaten or *Gatten Tree, Gater* or *Gatter Tree, Cateridge Tree, Wild Cornel.*
Cornouiller sauvage, sanguin, or *femelle; Puine,* or *Bois punais,* Fr.
Rother Hartriegel, Ger.
Sanguinello, Ital.
Varieties ✽ - - 1011
2 Púrsh*ii* Don. ✽
C. *sanguínea* Pursh.
3 fòliis variegàtis ✽
C. *candidíssima fol. var.* Lodd.

3. álba *L.* ✽ N. America fig. 762. 1011
The white-*fruited* Dogwood.
C. *stolonífera* Michx.
C. *tatárica* Mill.
Varieties ✽ - - 1012
2 circinàtum *G. Don.* ✽
C. *circinàtum* Cham.
Musquameena, Meethquan-peemeenattick, and *Meenisan*, of the Cree Indians.
3 sibírica *Lodd.* ✽

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4. (a.) strícta *Lam.* ✽ North America fig. 763, 764. 1012
The straight-*branched* Dogwood.
C. *fastigiàta* Michx.
C. *sanguínea* Walt., not of L.
C. *cyanocárpus* Gmel.
C. *canadénsis* Hort. Par.
C. *cærùlea* Meerb., not of Lam.
Varieties ✽ - - 1013
2 asperifòlia *Lodd.* ✽
3 sempervìrens *Lodd.* ✽

5. (a.) paniculàta *L'Hérit.* ✽ ‡ North America - - fig. 765. 1012
The panicled-*flowering* Dogwood.
C. *racemòsa* Lam.
C. *fœ'mina* Mill.
C. *citrifòlia* Hort. Par.
Varieties ✽ - - 1013
2 álbida *Ehrh.* ✽
3 radiàta *Pursh.* ✽

6. (a.) serícea *L'Hérit.* ✽ N. America fig. 766. 1013
The silky Dogwood.
C. *lanuginòsa* Michx.
C. *álba* Walt., not of L.
C. A*mòmum* Du Roi.
C. *rubiginòsa* Ehrh.
C. *ferrugínea* Hort. Par.
C. *candidíssima* Mill.
C. *cyanocárpos* Mœnch, not of Gmel.
Varieties ✽ - - - 1013
2 oblongifòlia *Dec.* ✽
C. *oblongifòlia* Rafin.
3 asperifòlia *Dec.* ✽
C. *asperifòlia* Michx.

7. (a.) circinàta *L'Hérit.* ‡ N. America fig. 767. 1014
The rounded-*leaved* Dogwood.
C. *tomentòsa* Michx.
C. *rugòsa* Lam.
C. *virginiàna* Hort. Par.

8. oblónga *Wall.* ‡ Nepal - - 1014
The oblong-*leaved* Dogwood.
C. *paniculàta* Hamilt.

C. macrophýlla *Wall.* ✽ - - - 1014
C. excélsa *H. B. et Kunth.* ✽ - - - 1014

§ ii. *Involucràtæ* Dec. ‡ - 1014

C. disciflòra *Moc. et Sesse.* ‡ - - - 1014
C. *grándis* Cham.
C. japónica *Thunb.* ‡ - - - - 1014
Vibúrnum japónicum Spreng.

9. más *L.* ‡ Europe pl. 189. f. 768. 1014
The male Dogwood, *the Cornel, or Cornelian Cherry Tree.*
C. *máscula* L'Hérit, &c.
Long Cherry Tree, Cornelia.
Cornouiller mâle, Cornes, Corneilles, Fr.
Kornel Kirsche Hartriegel, Ger.
Varieties ‡ - - - 1015
2 frúctu cèræ colòris *N. Du Ham.* ‡
3 variegàtus ‡

10. flórida *L.* ‡ N. America f. 769. 1017
The Florida Dogwood.
Virginian Dogwood.

Page
II. BENTHA'M*IA* Lindl. ♆ 1009. 1019
THE BENTHAMIA.
Córnus sp. Wall., Dec., and G. Don.

1. fragífera *Lindl.* ♆ Nepal f. 770. 1019
The Strawberry-bearing Benthamia.
Córnus capitàta Wall.

Loranthàceæ. ♣ ♣ 1020

I. *VI'*SCUM *L.* ♆ ♆ - - 1021
THE MISTLETOE.
Messeldine.
Gui, or *Guy*, Fr.
Mistl, or *Missel*, Ger.
Visco, or *Vischio*, Ital.
Legamodoga, Span.

1. álbum *L.* ♆ ♆ Europe f. 771, 772. 1021
The white-*fruited, or common,* Mistletoe.

App. i. *Other Species of* Víscum. 1025
V. verticilliflòrum *Royle.*
V. elongàtum *Dec.*

II. *AU'CUBA* Thunb. ♣ - - 1026
THE AUCUBA.
Aúkuba *Kæmpf.*
Eùbasis Salisb.

1. japónica *Thunb.* ♣ Japan - 1026
The Japan Aucuba.
Eùbasis dichótomus Salisb.
Spotted-leaved Laurel, Japan Laurel.

App. I. *Loranthàceæ not introduced.* 1026
Lorànthus europæ'us *L.*
The European Loranthus.
L. odoràtus *Wall.*
L. Lambert*iànus* Schultes.
Various other Species.
L. bícolor.
L. pulveruléntus.
L. vestìtus.
L. ligústrinus.
L. cordifòlius.

Caprifoliàceæ. - 1026
♆ ♣ ♣⊔ ♣ ♣□ ♣⊔ ♣ ♆ ♆ ♆⊔

Sect I. SAMBU'CEÆ.
♆ ♣ ♣ ♣□ ♣⊔ 1027

I. *S*AMBU'CUS *Tourn.* ♆ ♣ - 1027
THE ELDER.
Phyteùma Lour., not of L.

A. *Leaves pinnate. Flowers cymose or corymbose.*

1. nìgra *L.* ♆ Europe pl. 190. f. 773. 1027
The *common, or* black-*fruited*, Elder.
Bourtry, or *Bour Tree, Arntree*, Scotch.
Sureau, Fr.
Hollander, Ger.
Sambuco, Ital.
Sauco, Sabuco, Span.
Flaeder, Swed.
Hylde, Dan.
Varieties ♆ - - 1028
2 virèscens *Dec.* ♆
S. *virèscens* Desf.
3 leucocárpa ♆
4 laciniàta ♆
The *Parsley-leaved* Elder.
S. *laciniàta* Mill.
5 rotundifòlia ♆
6 monstròsa ♆
S. *monstròsa* Hort.
7 fòliis argénteis ♆ fig. 775.
8 fòliis lùteis ♆

2. canadénsis *L.* ♆ North America fig. 776. 1030
The Canadian Elder.

a. *Species of* Sambùcus *belonging to this Subdivision, not yet introduced.* - - 1030
S. palménsis *Link.*
S. mexicàna *Presl.*
S. *subalpìna* Cham. et Schlecht.
S. peruviàna *H. B. et Kunth.*
S. *suavèolens* Willd.

B. *Leaves pinnate. Flowers panicled.*

3. racemòsa *L.* ♣ South Europe fig. 777. 1031
The racemose-*flowered* Elder.
S. *montàna* Cam.
S. *cervìni* Tabern.
Variety ♣ - - - 1031
2 laciniàta *Koch.* ♣

4. (r.) pubéscens *Michx.* ♣ N. America 1031
The downy Elder.
S. *racemòsa* Hook. not of L.
S. *pubéscens* Lodd.
Variety ♣ - - - 1031
2 hetaphýlla ♣

C. *Leaves bipinnate.*
S. ebulöìdes *Desf.* - - - - - 1031
Phyteùma bipinnàta Lour.
S. phyteumöìdes *Dec.* - - - - 1031
Phyteùma cochinchinénsis Lour.

II. *V*IBU'RNUM *L.* ♆ ♣ ♣ ♣□ ♣⊔ 1027. 1032
THE VIBURNUM.
O'*pulus, Vibùrnum*, and T*ìnus*, Tourn.
V*ibúrnum* and O'*pulus* Mœnch.

§ i. T*ìnus* Tourn. ♣ ♣⊔ - 1032

1. T*ìnus* *L.* ♣ South Europe fig. 778. 1032
The Laurustinus.
V. l*auriförme* Lam.
T*ìnus* Tourn.
T*ìnus laurifòlia* Bork.
The Laurestine, Wild Baie Tree, Gerard.
Viorne, Laurier, Tin, Fr.
Lorbeerartiger Schneeball, Schwalkenstrauch, Ger.
Varieties ♣ - - - 1032
2 hírta *Ait.* ♣
V. T*ìnus* Mill.
V. *lùcidum* Mill.
3 lùcida *Ait.* ♣
4 virgàta *Ait.* ♣
5 stricta *Hort.* ♣

A. *Half-hardy Species of* Vibúrnum *belonging to the Section* T*ìnus.* - - 1033
V. rugòsum *Pers.* ♣⊔ fig. 779.
V. T*ìnus var. stricta* Ait.
V. *strictum* Link.
V. *rigidum* Vent.

Page
§ ii. *Vibúrnum* Tourn. ‡ ✽ ✸☐ ✸⊔ 1033
Lentàgo Dec.

2. Lentàgo *L.* ✽ ‡ North America fig. 780. 1033
The Lentago, *or pliant-branched*, Viburnum.
Tree Viburnum, Canada Viburnum.
Viorne à Rameaux pendans, Viorne luisante, Fr.
Birn blätteriger Schneeball, Ger.
Canadische Schwalkenbeer Strauch, Schwalken Strauch, Hayne.

3. (L.) *p*runifòlium *L.* ✽ ‡ N. America pl. 191. 1034
The Plum-tree-leaved Viburnum.
V. *Lentàgo* Du Roi.

4. (L.) pyrifòlium *Poir.* ✽ N. America fig. 781, 782. 1034
The Pear-tree-leaved Viburnum.

5. (L.) nùdum *L.* ✽ North America fig. 783. 1034
The naked-*corymbed* Viburnum.
V. *pyrifòlium* Poir.
Variety ✽ - - - 1035
2 squamàtum ✽ fig. 784.
V. *squamàtum* Willd.

6. *cassinöì*des *L.* ✽ North America 1035
The Cassine-like Viburnum.
V. *punctàtum* Rafin.

7. (*c*.) lævigatum *Willd.* ✽ ‡ N. America 1035
The smooth Viburnum.
V. cassinöì*des* Du Roi.
V. *lanceolàtum* Hill.
Cassìne *parágua* L.
Cassìne *corymbòsa* Mill.

8. Lantàna *L.* ✽ ‡ Europe f. 785. 1035
The Wayfaring Tree.
V. *tomentòsum* Lam.
Wild Guelder Rose, Pliant-branched Mealy Tree.
Viorne cotonneuse, Camara, Viorne commune, Coudre-moinsinne, Moncienne, Fr.
Schlingstrauch, Wolliger Schneeball, and *Schwalkenstrauch*, Ger.
Varieties ✽ ‡ - - 1036
2 grandifòlia *Ait.* ✽ ‡
V. *L. latifòlia* Lodd.
3 fòliis variegàtis *Lodd.* ✽ ‡

9. (L.) lantanöìdes *Michx.* ✽ ‡ North America - - fig. 786. 1036
The Lantana-like Viburnum, *or American Wayfaring Tree.*
V. *Lantàna β grandifòlia* Ait.
V. *grandifòlium* Sm.
V. *Lantàna β canadénsis* Pers.
Hobble Bush, Amer.

10. (L.) dahùricum *Pall.* ✽ Siberia 1037
The Dahurian Viburnum.
Lonícera mongólica Pall.
Córnus daùrica Laxm.

11. (?L.) cotinifòlium *D. Don.* ✽ Nepal fig. 787, 788. 1037
The Cotinus-leaved Viburnum.

12. dentàtum *L.* ✽ North America fig. 789, 790. 1038
The toothed-*leaved* Viburnum.
V. *dentàtum lùcidum* Ait.
V. *dentàtum glabéllum* Michx.
Arrow-wood.
Varieties ✽ - - - 1038
pubéscens *Lodd.* ✽
fòliis variegàtis *Lodd.* ✽
acuminàtum *Lodd.* ✽
longifòlium *Lodd.* ✽
montànum *Lodd.* ✽

13. (d.) pubéscens *Pursh.* ✽ N. America 1038
The downy Viburnum.
V. *dentàtum β pubéscens* Ait.
V. *dentàtum semi-tomentòsum* Michx.
V. *tomentòsum* Rafin.
V. *villòsum* Rafin.
V. *Rafinesqu*iànum *Schultes.*

14. (d.) nítidum *Ait.* ✽ N. America 1038
The shining-*leaved* Viburnum.

A. *Hardy Species of* V*ibúrnum belonging to the Section* V*ibúrnum, not yet introduced.* 1038

V. punctàtum *Hamilt.*
V. acuminàtum *Wall.*
V. ellípticum *Hook.*
V. nervòsum *D. Don.*
V. cordifòlium *Wall.*
V. Mullàha Hamilt.
V. stellàtum *Wall.*
V. involucràtum *Wall.*
V. eròsum *Thunb.*

B. *Half-hardy Species of* V*ibúrnum belonging to the Section* V*ibúrnum.* - 1039

V. odoratíssimum *Ker.* ✸⊔ fig. 791.
V. *sinénse* Zeyh.
Coffèa *monospérma* Hook. et Arn.
V. villòsum *Swartz.* ✽☐
V. monógynum *Blum.*

§ iii. O'*pulus* Tourn. ✽ - 1039

15. *O'*pulus *L.* ✽ Europe fig. 792. 1039
The Guelder Rose.
V. *lobàtum* Lam.
O'*pulus glandulòsus* Mœnch.
O'*pulus* Raii.
S*ambùcus aquática* Bauh.
Marsh Elder, Rose Elder, Water Elder.
Viorne-Obier, l'Obier d'Europe, Fr.
Schwalkenbeer Strauch, Wasserholder, Schneeball, Ger.
Varieties ✽ - - - 1039
2 stérilis *Dec.* ✽
V. O. *ròseum* Rœm.
The Snow-ball Tree, Guelder Rose.
Pellotte de Neige, Boule de Neige, Poire molle, Fr.
Schneeballe, Ger.
3 fòliis variegàtis *Lodd.* ✽

16. (*O.*) *a*cerifòlium *L.* North America fig. 793. 1040
The Maple-leaved Guelder Rose.

17. (*O.*) orientàle *Pall.* ✽ Asia Minor 1040
The Eastern Guelder Rose.
O'pulus orientàlis folio amplíssimo tridentàto Tourn.

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18. (*O.*) Oxycóccos *Pursh.* ♣ North America - - - 1041
The Cranberry-*fruited* Guelder Rose.
V. *opulòides* Mühl.
V. *trílobum* Marsh.
V. *O'pulus americàna* Ait.
Variety ♣ - - - 1041
2 subintegrifòlius *Hook.* ♣

19. (*O.*) edùle *Pursh.* ♣ North America 1041
The edible-*fruited* Guelder Rose.
V. *O'pulus edùlis* Michx.

20. (*O.*) mólle *Michx.* ♣ North America 1041
The soft-*leaved* Guelder Rose.
V. *alnifolium* Marsh.

A. *Species of Vibúrnum belonging to the Section O'pulus, not yet introduced.* 1041
V. microcárpum *Cham. et Schlecht.*
V. polycárpum *Wall.*
V. cylíndricum *Ham.*
V. grandiflòrum *Wall.*
V. erubéscens *Wall.*
V. coriàceum *Blum.*
Several other Species.

Sect. II. Lonice'reæ. ♣ ♧ ⚘ ✢ ✢ ⌋ 1041

II. DIERVI'LLA Tourn. ♣ 1027. 1042
The Diervilla.
Lonicera sp. L.
Weìgela Thunb.
Weigèlia Pers.

1. canadénsis *Willd.* ♣ North America fig. 794, 795. 1042
The Canadian Diervilla.
Lonicera Diervílla L.
D. Tournefórtii Michx.
D. hùmilis Pers.
D. lùtea Pursh.
D. trífida Mœnch.
D. arcadiénsis Du Ham.

App. i. *Species of Diervílla not yet introduced.* - - 1042
D. japónica *Dec.*
Weìgela japónica Thunb.
D. coræénsis *Dec.*
Weìgela coræénsis Thunb.
Weigèlia coræénsis Pers.

IV. LONI'CERA Desf. ♣ ♧ ✢ ⚘ ⚘ ⌋ 1027. 1042
The Lonicera, *or Honeysuckle.*
Lonicera sp. L. and many authors.
Caprifòlium and *Xylósteum* Juss.
Xylósteum, Caprifòlium, Chamæcé-rasus, and *Periclýmenum,* Tourn.
Caprifòlium and *Lonicera Rœm.*
Lonicera and *Xylósteum* Torrey.
Chèvrefeuille, Fr.
Geissblätt, Honeigblume, Lonicere, Ger.

§ i. *Caprifòlium* Dec. ⚘ ✢ ✢ ⌋ 1043
Caprifòlium Juss. and Rœm.
Lonicera Torr., not of Schult.

A. *Flowers ringent.— Caprifòlium* Tourn.

1. Periclýmenum *L.* ⚘ Europe 1043
The Woodbine, *or common Honeysuckle.*
Periclýmenum, Ger.
Periclýmenum germánicum Riv.
Periclýmenum horténse Gesn.
Caprifòlium Periclýmenum Rœm. et Schultes.
Caprifòlium sylváticum Lam.
Caprifòlium Raii.
Woodbind.
Chèvrefeuille des Bois, Fr.
Wildes gemeines Geissblätt, Ger.
Gewoone Kamperfoelie, Dutch.
Lego Bosco, Ital.
Madre Selva, Span.
Varieties ⚘ - - - 1044
2 serótinum *Ait.* ⚘ fig. 797.
Periclýmenum germánicum Mill.
3 bélgicum ⚘
Periclýmenum germánicum Mill. Dict.
4 quercifòlium *Ait.* ⚘

2. *C*aprifòlium *L.* ⚘ Europe f. 798. 1045
The Goat's-leaf, *or pale perfoliate,* Honeysuckle.
Periclýmenum perfoliàtum Ger.

3. (*C.*) etrúsca *Santi.* ⚘ fig. 799. 1046
The Etruscan Honeysuckle.
L. etrúsca Hort. Fl. Austr.
Caprifòlium etrúscum Rœm. et Schult.
Periclýmenum Gouan.
Caprifòlium itálicum perfoliàtum præ'cox Tourn.

4. impléxa *Ait.* ✢ Sicily fig. 800. 1046
The interwoven, *or Minorca,* Honeysuckle.
Caprifòlium impléxum Rœm. et Schult.
Variety ✢ - - - 1047
2 baleárica *Viv.* ✢
Caprifòlium baleáricum Dum.
L. baleárica Dec.
L. Caprifòlium Desf.

5. flàva *Sims.* ⚘ North America fig. 801. 1047
The yellow-*flowered* Honeysuckle.
Caprifòlium flàvum Ell.
Caprifòlium Fràseri Pursh.

6. (f.) pubéscens *Swt.* ⚘ North America fig. 802. 1047
The pubescent Honeysuckle.
Caprifòlium pubéscens Goldie.
L. hirsùta Eaton.
L. Góldii Spreng.

7. parviflòra *Lam.* ⚘ North America fig. 803, 804. 1048
The small-flowered Honeysuckle.
Caprifòlium parviflòrum Pursh.
L. dioìca L.
L. mèdia Murr.
Caprifòlium bracteòsum Michx.
Caprifòlium dioìcum Rœm. et Schult.
Caprifòlium glaùcum Mœnch.
Glaucous Honeysuckle.
Chèvrefeuille dioique, Fr.
Meergrünes Geissblätt, Ger.
Middelboore Kamperfoelie, Dutch.

8. (p.) Douglàsii Dec. ⚘ N. America 1048
Douglas's Honeysuckle.
Caprifòlium Douglàsii Lindl.

9. gràta *Ait.* ✢ N. America f. 805. 1048
The pleasant, *or evergreen,* Honeysuckle.
Caprifòlium gràtum Pursh.
L. virginiàna Marsh.
? *Periclýmenum americànum* Mill.

L. microphýlla *Hook.* - - - 1019

Page
B. *Limb of Corolla nearly equal.* — *Periclýmenum* Tourn. - - 1049

10. sempervìrens *Ait.* ⚘ North America fig. 806. 1049
The evergreen *Trumpet* Honeysuckle.
Caprifòlium sempervìrens Michx.
Periclýmenum sempervìrens Mill.
Alatérnus sempervìrens Kœhl.
Periclýmenum virginìacum Riv.
Varieties ⚘ - - - 1049
2 màjor *Ait.* ⚘
The large *Trumpet* Honeysuckle.
3 mìnor ⚘ ⌋
The small *Trumpet* Honeysuckle.
? *L. connáta* Meerb.

11. ciliòsa *Poir.* ⚘ North America 1050
The ciliated-*leaved* Honeysuckle.
Caprifòlium ciliòsum Pursh.
L. ciliàta Dietr.

12. occidentàlis *Hook.* ⚘ N. Amer. 1050
The Western Honeysuckle.
Caprifòlium occidentàle Lindl.
Caprifòlium ciliòsum Dougl. MSS.
L. pilòsa *Willd.* - - - 1050
Caprifòlium villòsum H. B. et Kunth.

§ ii. *Xylósteum* Dec. ✽ ✽ ⚘ ⚘ 1050
Xylósteon Juss.
Lonícera Rœm. et Schult.
Xylósteon and *Chamæcérasus* Tourn.
Xylósteum and Isìka *Adans.*
Cobœ'a Neck.
The Fly Honeysuckle.
Hackenkirsche, Ger.
Hondsbezien, Hondskarsen, Dutch.

A. *Ovaries and Berries altogether distinct. Stems scandent. Flowers irregular.* — Nintoòa *Dec.* 1050

13. confùsa *Dec.* ⚘ Japan fig. 808. 1050
The confused Honeysuckle.
Nintoòa *confùsa* Scot.
Lonícera japónica Andr., not of Thunb.
Nintoo, Sintoo, Kæmpf.
Caprifòlium japónicum Loud. Hort. Brit.

14. longiflòra *Dec.* ⚘ China - 1051
The long-flowered Honeysuckle.
Caprifòlium longiflòrum Sabine.
Nintoòa *longiflòra* Swt.
Caprifòlium japónicum D. Don.
Caprifòlium nepalénse G. Don.

15. japónica *Thunb.* ⚘ Japan fig. 809, 810. 1051
The Japan Honeysuckle.
Nintoòa *japónica* Swt.
L. chinénsis Hort. Kew.
L. flexuòsa Lodd., not of Thunb.
L. glabràta Roxb.
Caprifòlium chinénse Loud. Hort. Brit.
Caprifòlium flexuòsum Hort.

a. *Hardy Species of Lonícera belonging to the Division* Nintoòa *of the Section Xylósteum, not yet introduced.* - - - 1052
L. cochinchinénsis *Don's Mill.*
L. Xylósteum Lour.
L. Telfaìrii Hook. et Arn.
L. Periclýmenum Lour.
L. Lechenaúltii Wall.
L. glabràta *Wall.*
L. nìgra Thunb.
L. acuminàta *Wall.*
L. diversifòlia *Wall.*
L. ligústrina *Wall.*
Xylósteum ligústrinum D. Don.
Xylósteum Naisòca *Hamilt.*
L. lanceolàta *Wall.*
L. canéscens *Schousb.*
L. biflòra Desf.
L. bracteàta *Royle.*
Several other species of Lonícera.

B. *Berries distinct, or usually connate together at the Base, and diverging at the Tip. Corolla hardly gibbous at the Base, or equal.* — *Chamæcérasi* Dec. - - - 1052

16. tatárica *L.* ✽ Siberia f. 811, 812. 1052
The Tartarian Honeysuckle.
Xylósteum cordàtum Mœnch.
Xylósteum tartáricum Dum.
Varieties ✽ - - - 1053
2 albiflòra *Dec.* ✽
L. pyrenàica Willd.
3 rubriflòra *Dec.* ✽
L. grandiflòrum Lodd.
L. sibírica Hort.
4 lùtea *Lodd.* ✽
5 latifòlia *Lodd.* ✽

17. (t.) nìgra *L.* ✽ Europe - 1053
The black-*fruited* Honeysuckle.
Caprifòlium ròseum Lam.
Chamæcérasus nìgra Delarb.
Variety ✽ - - - 1053
2 campaniflòra ✽ fig. 813, 814.
Xylósteum campaniflòrum Lodd.

18. (t.) ciliàta *Mühl.* ✽ N. Amer. 1053
The ciliated-*leaved* Honeysuckle.
Xylósteum ciliàtum Pursh.
L. tatárica Michx., not of L.
L. canadénsis Rœm. et Schult.

19. pyrenàica *L.* ✽ Pyrenees - 1054
The Pyrenean Honeysuckle.
Caprifòlium pyrenàicum Lam.
Xylósteum pyrenàicum Tourn.

20. punícea *Sims.* ✽ North America fig. 815. 1054
The crimson-*flowered* Honeysuckle.
Symphoricárpos puníceus Swt.

21. Xylósteum *L.* ✽ North America fig. 816. 1054
The bony-wooded, *or upright, Fly* Honeysuckle.
Caprifòlium dumetòrum Lam.
Xylósteum dumetòrum Mœnch.
Varieties ✽ - - - 1055
2 leucocárpa *Dec.* ✽
3 xanthocárpa *Dec.* ✽
4 melanocárpa *Dec.* ✽

22. flexuòsa *Thunb.* ✽ Japan - - 1055
The flexible-*stemmed* Honeysuckle.
L. nìgra Thunb., not of L.
L. brachýpoda Dec.

a. *Hardy Species of Lonícera, belonging to the Division Chamæcérasi of the Section Xylósteum, not yet introduced* - - - 1055
L. híspida *Pall.*

C. *Berries either distinct or joined together. Corolla very gibbous at the Base. Erect bushy Shrubs.* — *Cuphánthæ* Dec. - - 1055

23. involucràta *Banks.* ✽ North America fig. 817, 818, 819. 1055
The involucrated Honeysuckle.
Xylósteum involucràtum Rich.

Page
a. *Hardy Species of Lonicera belonging to the Division Cuphánthæ of the Section Xylósteum, which are not yet introduced.* - - 1056
L. gibbòsa *Willd.*
Xylósteum mexicànum H. B. et Kunth.
L. Mociniàna Dec.
L. gibbòsa Moc. et Sesse.
L. Ledeboúrii Eschsch.

D. *Berries two on each Peduncle, joined together in one, which is bi-umbilicate at the Apex. Erect branching Shrubs.* — Isìkæ *Adans.* - 1056
24. alpígena *H.* ✻ Europe fig. 820, 821. 1056
The alpine Honeysuckle.
Caprifòlium alpìnum Lam.
Caprifòlium alpìgenum Gærtn.
Isìka *alpígena* Borck.
Isìca *lùcida* Mœnch.
Xylósteum alpígenum Lodd.
? *Chamæcérasus alpìgena* Delarb.
Cherry Woodbine.
Heckenkirsche, Ger.
Variety ✻ - - - 1056
2 sibírica *Dec.* ✻
L. sibírica Vest.
25. (a.) microphýlla *Willd.* ✻ Siberia 1057
The small-leaved Honeysuckle.
L. alpígena Sievers.
26. oblongifòlia *Hook.* ✻ North America fig. 822. 1057
The oblong-leaved Honeysuckle.
Xylósteum oblongifòlium Goldie.
27. cærùlea *L.* ✻ Eur. f. 823, 824. 1057
The blue-*berried* Honeysuckle.
L. villòsa Mühl.
Xylósteon villòsum Michx.
Xylósteon Solònis Eaton.
L. velutìna Dec.
L. altáica Pall.
Xylósteum cærùleum canadénse Lam.
Xylósteum canadénse Du Ham.
Caprifòlium cærùleum Lam.
Chamæcérasus cærùlea Delarb.
L. pyrenáica Pall.
L. Pallàsii Led.
28. (c.) orientàlis *Lam.* ✻ Asia Minor 1058
The Oriental Honeysuckle.
L. caucásica Pall.
L. cærùlea Güld.
Chamæcérasus orientàlis laurifòlia Tourn.
29. ibérica *Bieb.* ✻ - - - 1058
The Georgian Honeysuckle.
Xylósteon ibéricum Bieb.

a. *Hardy Species of the Genus Lonicera belonging to the Division* Isìkæ *of the Section Xylósteum, not yet introduced.* - - 1058
L. Webbiàna Wall.
L. Govaniàna Wall.
L. angustifòlia *Wall.*
Some other Species.

V. SYMPHORICA'RPOS *Dill.* ✻ 1027. 1058
THE ST. PETER'S WORT.
Symphoricárpa Neck.
Symphòria Pers.
Anisánthus Willd.
Lonícera sp. L.
1. vulgàris *Michx.* ✻ N. Am. f. 825. 1058
The common St. Peter's Wort.
Lonícera Symphoricárpos L.
S. parviflòra Desf.
Symphòria conglomeràta Pers.
Symphòria glomeràta Pursh.
Variety ✻ - - - 1059
2 fòliis variegàtis ✻
S. glomeràta fòliis variegâtis Lodd.
2. racemòsus *Michx.* ✻ fig. 826. 1059
The racemose-*flowered* St. Peter's Wort, *or Snowberry.*
Symphòria racemòsa Pursh.
L. leucocárpa Hort.

App. i. *Hardy Species of Symphoricárpos not yet introduced.* - - 1059
S. occidentàlis *Richards.*
Wolfberry, Amer.

VI. LEYCESTE'RIA Wall. ✻ ⊔ 1027. 1060
THE LEYCESTERIA.

1. formòsa *Wall.* ✻ ⊔ Nepal f. 827. 1060
The beautiful Leycesteria.
Hamèlia connàta Pucrari MSS.

Rubiàceæ. - 1061

♀ ⊔ ✻ ✻ ✻ ⊔ ✲ ⊔ § ⊔

I. CEPHALA'NTHUS *L.* ✻ - 1061
THE BUTTON-WOOD.

1. occidentàlis *L.* ✻ North America fig. 828, 829. 1061
The Western Button-wood.
C. oppositifòlius Mœnch.
Swamp Globe Flower, Amer.
Variety ✻ - - - 1062
2 brachýpodus *Dec.* ✻

Some other Species of Cephalánthus. 1062

App. I. *Half-hardy ligneous Plants belonging to the Order* Rubiàceæ. - 1062
Pincknèya pùbens *Michx.* ♀ ⊔ fig. 830.
Pincknèya pubéscens Pers.
Cinchòna caroliniàna Poir.
Seríssa fœ'tida *Comm.* ✲ ⊔ fig. 831.
Lýcium japónicum Thunb.
Lýcium fœ'tidum L. fil.
Lýcium índicum Retz
Dysòda fasciculàta Lour.
Buchòzia coprosmöìdes L'Hérit.
Dysoda fœ'tida Salisb.
Spermacòce fruticòsa Desf.
Plócama péndula *Ait.* ✻ ⊔
Bartlíngia scopària Rchb.
Phýllis *Nòbla* L. ✻
Anthospérmum æthiópicum *L.* ✻ ⊔
Ambrària Heísteri Walsh.
*R*ùbia fruticòsa *Ait.* ✲ ⊔
R. fruticòsa canadénsis Poir.
Bouvárdia Jacquìni *H. B. et Kunth.* ✻ ⊔
B. triphýlla Hort.
Houstònia coccínea Bot. Rep.
Manéttia *glàbra* Cham. et Schlecht. § ⊔
M. cordifòlia Mart.

Lobeliàceæ. ✻ ⊔ 1063

Tùpa salicifòlia *G. Don.* ✻ ⊔
Lobèlia Tùpa *Ait.*
Lobèlia gigantèa Sims.
Lobèlia salicifòlia Swt.
Lobèlia arbòrea *Forst.* ? ✲ ⊔
L. supérba *Cham.* ✲ ⊔

Campanulàceæ. ✻ ⊔ 1063

Músschia aùrea *Dumort.* ✻ ⊔
Campánula aùrea L.

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Compósitæ. - 1063
✽ ✽ ✽ ⊔ ✽ ⌟ ✽ ✽ ⊔ ∿ ⌟

I. STÆHELI'NA Lessing. ✽ ✽ ⌟ 1063. 1064
THE STÆHELINA.
Stæheline, Fr. and Ger.

1. dùbia *L.* ✽ S. Europe fig. 832. 1064
The doubtful, *or Rosemary-leaved*, Stæhelina.
S. rosmarinifòlia Cass.

App. i. *Half-hardy Species of Stæhelìna.* 1065
Stæhelina arboréscens *L.* ✽ ⌟
S. Chamæpeùce *L.* ✽ ⌟

II. *BA'CCHARIS R. Br.* ✽ ✽ ⌟ 1063. 1065
THE BACCHARIS, *or Ploughman's Spikenard.*
Bacchante, Fr.
Baccharis, Ger.

1. *h*alimifòlia *L.* ✽ N. Am. f. 833. 1065
The Sea-Purslane-leaved Baccharis, *or the Groundsel Tree.*
Senècio arboréscens Hort. Kew.

2. angustifòlia *Pursh.* ✽ N. Amer. 1065
The narrow-leaved Baccharis, *or Ploughman's Spikenard.*

B. glomeratiflòra *Mich.* ✽ - - - 1066
B. Dioscóridis W. ✽ ⌟ - - - 1066

III. *I'VA* L. ✽ - - 1064. 1066
THE IVA.

1. frutéscens *L.* ✽ N. Amer. f. 834. 1066
The shrubby Iva.
Agérato affi'nis peruviàna frutéscens Pluk.
Bastard Jesuit's Bark Tree.

IV. SANTOLI'NA *L.* ✽ 1064. 1066
THE SANTOLINA, *or Lavender Cotton.*
Santoline, Fr.
Heiligenpflanze, Ger.

1. *C*hamæcyparíssus *L.* ✽ France fig. 835. 1067
The Dwarf Cypress Santolina, *or common Lavender Cotton.*

2. (*C.*) squarròsa *W.* ✽ Europe 1067
The squarrose (? *leaved*) Santolina.
Abrótanum fœ'mina fòliis Erìcæ Moris.

3. víridis *W.* ✽ Europe - - 1067
The green Santolina.

4. *r*osmarinifòlia *L.* ✽ Spain f. 836. 1067
The Rosemary-leaved Santolina.

V. *A*RTEMI'S*IA* Cass. ✽ ✽ ⊔ 1064. 1068
THE ARTEMISIA.

1. *A*brótanum *L.* ✽ Europe fig. 837. 1068
The Abrotanum Artemisia, *or Southernwood.*
Abrótanus más Dod.
Old Man.
Armoise Aurone, Aurone des Jardins, la Citronelle, la Garderobe, Fr.
Eberrante, Wermuth, Stabwurtz, Gartenwurtz, Ger.
Abrotano, Ital., Span., and Port.
Varieties ✽ - - - 1068
2 hùmile *Hort.* ✽

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3 tobolskiànum *Hort.* ✽
A. *tobolskiàna* Lodd.

2. *S*antónica *L.* ✽ Asia fig. 838. 1068
The Santonica Artemisia, *Tartarian Southernwood, or Wormseed.*
Artemisia fruticòsa, &c., Gmel.

3. arboréscens *L.* ✽ Levant - 1069
The arborescent Artemisia, *or Tree Wormwood.*
Absinthium arboréscens Lob.
Absinte, Armoise en Arbre, Fr.

App. i. *Other hardy Species of Artemísia.* 1069
A. procèra ✽

App. ii. *Half-hardy Species of Artemísia.* 1069
A. argéntea *Ait.* ✽ ⊔ fig. 831.

VI. *H*ELICHRY'SUM *Lessing.* ✽ 1064. 1070
THE HELICHRYSUM, *or Everlasting Flower, Part of* Gnaphalium L.

1. *S*tœ'chas *D. Don.* ✽ Europe - 1070
The Stœchas Helichrysum, *or common Shrubby Everlasting Flower.*
Gnaphàlium Stœ'chas L.
Stœ'chas citrina Dod.

App. i. *Half-hardy Species of* Helichr*ỳsum.* 1070
H. frùticans *D. Don.* ✽ ⊔ fig. 840.
Astélma frùticans Bot. Reg.
Gnaphàlium frùticans L.
Gnaphàlium grandiflòrum Bot. Rep.
H. congéstum *D. Don.* ✽ ⊔ fig. 841.
Gnaphalium congéstum Lamb.
H. apiculàtum *Lodd.*
H. crassifòlium *Lodd.*
H. diversifòlium *Lodd.*
H. ericöìdes *Lodd.* ✽ ⊔

VII. CINERA'RIA *Lessing.* ✽ ⊔ ∿ ⌟ 1064. 1071
THE CINERARIA.
Cineraire, Fr.
Aschenpflauze, Ger.

1. marítima *L.* ∿ ⌟ S. Europe 1071
The sea-*side-inhabiting* Cineraria, *or the Sea Ragwort.*
Cinerària Dod.
Jacobæ'a marìtima Bonp.
Sicilian Ragwort.

App. i. *Half-hardy Species of Cinerària.* 1071
C. cruénta fig. 842.
C. láctea ✽ ⊔
C. canéscens ✽ ⊔
C. hýbrida ✽ ⊔
C. populifòlia ✽ ⊔
C. bicolor ✽ ⊔
C. lanàta ✽ ⊔ fig. 145.
C. geifòlia ✽ ⊔
C. amellöìdes ✽ ⊔ fig. 843.
Agathæ'a cœléstis Cas.

App. I. *Half-hardy Genera belonging to the Order Compósitæ.* - - 1072
Carlowìzia salicifòlia *Mœnch.* ✽ ⊔
Onobròma salicifòlia Link.
Arctòtis áspera *L.* ✽ ⊔
Didélta carnòsum *H. K.* ✽ ⊔
D. spinòsum *H. K.* ✽ ⊔
Berckhèya grandiflòra *W.* ✽ ⊔
Cullùmia R. Br. ✽ ⊔
Othónna flabellifòlia *Bot. Cab.* ✽ ⊔ fig. 847.
O. virgìnea L.
O. pinnàta *Bot. Mag.*
O. pectinàta ✽ ⊔
O. coronopifòlia ✽ ⊔

Page
Osteospérmum plsiferum *L.* ✱ ⊔ fig. 848,.849, 850.
Caléndula chrysanthemifòlia *Ven.* ⌂ ⊔ fig. 851.
Mutísia latifòlia *D. Don.* ⚘ ⊔ fig. 852.
Dáhlia Cav.
Atalánthus pinnàtus *D. Don.* ⌂ ⊔
Prenánthes pinnàta L.
Sónchus fruticòsus *Jacq.* ✱ ⊔ fig. 853.
Vernònia acutifòlia *Hook.* ✱ ⊔
A'ster argophŷllus *Lab.* ✱ ⊔ fig. 854.
Haxtònia argophŷlla Caley.
A. angustifòlius *Jacq.* ✱ ⊔
A. aculeàtus *Lab.* ✱ ⊔ fig. 855.
Chrysócoma Comaúrea *L.* ✱ ⊔ fig. 856.
Brachylæ'na nereifòlia *Snt.* ✱ ⊔
Báccharis nereifòlia L.
Conŷza caroliniénsis *Jacq.* ✱ ⊔
Podánthus *Mitìqui* Lindl. ✱ fig. 857.
Culcítium salícinum *Spr.* ✱ ⊔ fig. 858.
Cacàlia salícina Lab.
Cacàlia L.
Franzèria *artemisiöìdes* W. ✱ ⊔
F. *ambrosiöìdes* *Cav.* ✱ ⊔
Œ'dera prolífera *Thunb.* ✱ ⊔
*P*yrèthrum *fœniculàceum* *W. En.* ✱ ⊔ fig. 859.
Ismèlia maderénse ✱ ⊔
*A*thanàsia pubéscens *L.* ✱ ⊔
*B*alsamìta *ageratifòlia* *Desf.* ✱ ⊔
Piéntza flabellifórmis *W.* ✱ ⊔
Tanacètum flabellifórme L'Hérit.
Eriocéphalus africànus *L.* ⌂ ⊔
Senècio élegans plèna rùbra *Bot. Mag.* ⌂ ⊔
S. liliácinus Link. ⌂ ⊔
Tarchonánthus camphoràtus *Lam.* ✱ ⊔
Eriócoma fràgrans *D. Don.* ✱ ⊔
Various other genera of Compósitæ.

Epacridàceæ. ✱ ⊔ 1075

Styphèlia *R. Br.*
Stenanthèra pinifòlia *R. Br.* ✱ ⊔
Styphèlia pinifòlia Spreng.
Cyathòdes glaúca *Labil.* ♣ ⊔
Trochocárpa glaúca Spreng.
C. *Oxŷcedrus* *R. Br.* ✱ ⊔
C. aceròsa *R. Br.* ✱ ⊔
Lissánthe sápida *R. Br.* ✱ ⊔
L. subulàta ✱ ⊔
L. strigòsa ✱ ⊔
L. *daphnöìdes* ✱ ⊔
L. ciliàta ✱ ⊔
Leucopògon lanceolàtus *R. Br.* ✱ ⊔
Styphèlia lanceolàta Sm.
Styphèlia parviflòra Andr.
L. Ríchei R. Br. ✱ ⊔ fig. 860.
L. polystàchyus Lodd.
L. apiculàtus Sm.
L. parviflòrus Lindl.
Monótoca ellíptica *R. Br.* ✱ ⊔
M. álbens ✱ ⊔
M. lineàta ✱ ⊔
M. *scopària* ✱ ⊔
Trochocárpa *laúrina* *R. Br.* ✱ ⊔ fig. 861.
Styphèlia cornifòlia Rudge.
E'pacris grandiflòra *Sm.* ✱ ⊔ fig. 862.
E. longiflora Cav.
Lysinèma *R. Br.*
Andersònia sprengeliöìdes R. Br. ✱ ⊔ fig. 863.
Sprengèlia incarnàta *Bot. Cab.* ✱ ⊔
Sphenótoma grácilis *Snt.* ✱ ⊔
Dracophŷllum grácile R. Br.
Various other Genera of Compósitæ.

Ericàceæ. - - 1076
♣ ♣ ♣□ ♣⊔ ✱ ✱⊔ ✱ ✱□ ✱⊔
✱⊔ ✱ ⌂ ⌂ ⊔ ✳ ⚘ ⚘⊔ ⚘

Sect. I. Eri'ceæ. - 1076
♣ ♣ ♣□ ✱ ✱⊔ ✱ ✱⊔ ⌂ ⌂ ⌂⊔
✳ ⚘ ⚘

§ i. *Eríceæ normàles.* ✱ ⌂ ⚘ ✱⊔ 1076

I. ERI'CA *D. Don.* ✱ ⌂ 1076. 1079
The Heath.
Erìca sp. of L. and other authors.

1. *Tétralix* *L.* ⌂ N. Europe. f. 864. 1079
The four-leaved Heath.
E. *botulifórmis* Sal.
E. *barbárica* Raii.
E. *pùmila* Park.
E. T. *rùbra* Hort. Eric. Wob.
The cross-leaved Heath.
Varieties ⌂ - - - 1079
1 rùbra *Hort. Eric. Wob.* ⌂
2 cárnea *Loudon's H. B.* ⌂
3 álba *Hort. Eric. Wob.* ⌂
4 Mackaiàna ⌂
E. *Mackai*àna *Bab.*

2. cinèrea *L.* ⌂ N. Europe f. 865. 1079
The grey Heath.
E. *mutábilis* Salisb.
E. *hùmilis* Neck.
E. *tenuifòlia*, Ger.
E. *c. rùbra* Bedf. Hort. Eric. Wob.
Varieties ⌂ - - - 1080
2 atropurpùrea *Lodd.* ⌂
3 álba *Lodd.* ⌂
4 pállida *Lodd.* ⌂
5 carnéscens *Lodd.* ⌂
6 prolífera *Lodd.* ⌂
7 stricta *Lodd.* ⌂

3. arbòrea *L.* ✱ South Europe - 1080
The Tree Heath.
E. *scopària* Thunb., exclusive of the synon.
E. *cáffra* L.
E. *triflòra* Berg.
E. *procèra* Sal.
Varieties ✱ - - - 1080
2 stylòsa *Don's Mill.* ✱
3 squarròsa *Hort.* ✱
4 mínima *Hort.* ✱

4. (a.) polytrichifòlia *Sal.* ✱ Port. 1080
The Polytrichum-leaved Heath.
? *E. arbòrea var.*
? *E. a. stylòsa* Hort.

5. (a.) codonòdes *Lindl.* ✱ Europe fig. 866. 1080
The bell-shaped-*flowered* Heath.

6. austràlis *L.* ✱ Spain fig. 867. 1081
The southern Heath.
E. *pistillàris* Sal.

7. strícta *Donn.* ✱ Italy fig. 868. 1081
The upright Heath.
E. *multicaùlis* Sal.
E. *córsica* Dec.
E. *ramulòsa* Viv.

8. ciliàris *L.* ⌂ Portugal fig. 869. 1081
The ciliated-*leaved* Heath.

9. sícula *Schonberg.* ✱ Sicily - 1082
The Sicilian Heath.

II. GYPSOCA'LLIS *Sal.* ✱ ⌂ 1076. 1082
The Gypsocallis, *or Moor Heath.*
Ericæ of others.

1. vàgans *Sal.* ⌂ England fig. 870. 1082
The wandering Gypsocallis, *or Cornish Moor Heath.*
Erìca vàgans L.
Erìca vaga Sal.
Erìca multiflòra Huds.
Erìca didyma Stokes.
Erica purpuráscens Lam.

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Varieties - - - 1082
2 pállida *Don's Mill.*
3 rubéscens *Bree.*
4 purpuráscens *Bree.*
5 álba *Don's Mill.*
6 tenélla *Don's Mill.*

2. multiflòra *D. Don.* South Europe fig. 871. 1083
The many-flowered Gypsocallis.
Erìca *multiflòra* L.
Erìca *juniperfiòlia, &c.*, Garidel.
Erìca *multiflòra longi-pedicellàta* Wendl.
Erìca *pedunculàris* Presl.

3. cárnea *D. Don.* Germany fig. 872. 1083
The flesh-colour-*flowered* Gypsocallis.
Erìca *cárnea* L. Sp.
Erìca *herbàcea* L. Diss.
Erìca *saxátilis* Sal.

4. mediterrànea *D. Don.* S. Eur. 1083
The Mediterranean Gypsocallis.
Erìca *mediterrànea* L.
Erìca *lùgubris* Sal.

III. CALLU'NA *Sal.* - 1076. 1084
THE CALLUNA.
Erìca *sp.* L. and others.

1. vulgàris *Sal.* Europe - - 1084
The Ling, *or Heather.*
Erìca *vulgàris* L.
La Bruyère, Fr.
Heide, Ger.
Lyng, Dan.
Liung, Swed.
Erica, Ital.
Brezo, Span.
Urze, Port.
Weresk, Russ.
Varieties - - - 1084
1 purpùrea *Don's Mill.*
2 spùria *Don's Mill.*
3 decúmbens *Don's Mill.*
4 tomentòsa *Don's Mill.*
5 álba *Don's Mill.*
6 flòre plèno *Don's Mill.*
7 fòliis variegàtis *Don's Mill.*
8 aúrea *Don's Mill.*
9 coccínea *Don's Mill.*
10 spicàta *Don's Mill.*
11 àtro-rùbens
12 serótina

App. I. *List of hardy Species and Varieties of* Ericàceæ *belonging to the Group* Erìceæ *normàles, of which Plants are cultivated for Sale in the Tooting Nursery; with some additional Names from the "Hortus Woburnénsis."* - - - - 1086

App. II. *Arrangement of the hardy Heaths included in the preceding List; showing which of them are in Flower, in the open Garden, every Month in the Year; and the Colour of the Flower, and the Height of each.* - - - - - 1088

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App. III. *List of Cape Heaths which will stand in the open Air, in Autumn, or the middle of Winter, without Protection, with Fahrenheit's Thermometer 7 or 8 Degrees below Freezing, without suffering in any way from such a Degree of Cold.* - 1089

Callista acuminàta (*Erìca L.*) *Bot. Cab.* fig. 873.
2 pállida *Hort. Brit.*
comòsa *Hort. Kew. Ic.*
2 álba *Andr. Heath.*
3 rùbra *Wendl. E.*
ferrugínea *Andr. Heath.*
*h*yacinthöìdes Andr. Heath.
tenuiflòra *Andr. Heath.*
2 álba *Hort. Brit.*
3 lùtea.
tetragòna *Andr. Heath.*
C. pugionifòlia Sal.
ventricòsa *Bot Mag.*
2 coccínea.
3 stellífera.
4 cárnea.
5 álba.
6 supérba.
7 erécta.
8 nàna.
9 hirsùta.
Ceràmia (*Erìca L.*) serpyllifòlia *Lodd.* fig. 874.
Dasyánthes (*Erìca L.*) Sparmánn*i* Andr. Heath.
D. díspera A. H.
D. hystricifiòra L. T.
Désmia (*Érica L.*) conférta *Andr. Heath.* fig. 875.
*E*rìca aggregàta *Wendl. Eric.* fig. 876.
2 álba *Hort. Brit.*
campanulàta *Andr. Heath.*
*c*erinthöìdes *Bot. Mag.*
1 glabriúscula *Swt.*
2 híspida *Swt.*
3 màjor *H. Wob.*
4 mìnor *H. Wob.*
5 nàna *H. Wob.*
6 supérba *Roll.*
congésta *Wendl. Eric.*
*c*orifòlia.
E. *articulàris* B. M.
E. *calycìna* A. H.
Lampròtis corifòlia Don's Mill.
*c*upréssina *Roll.*
globòsa *Andr. Heath.*
glomeràta *Andr. Heath.*
grácilis *Wendl. Eric.*
hispídula.
leucanthèra.
lùcida *Andr. Heath.*
? *Lampròtis lùcida* Don's Mill.
margaritàcea *Andr. Heath.*
montàna.
péndula *Lodd.*
perlàta.
pubéscens.
1 màjor *H. Brit.*
2 mìnor *Roll.*
3 pubescéntior *H. Brit.*
4 vérna *H. Wob.*
ramentàcea *Andr. Heath.*
setàcea *Andr. Heath.*
tenélla *Andr. Heath.*
Eurýlepis (*Erìca L.*) triflòra *Wendl. Eric.*
Gypsocállis (*Erìca L.*) intertéxta *Lodd.*, fig. 877.
longipedunculàta *Bot. Cal.*
nígrita *Don's Mill.*
Páchysa physòdes *Bot. Mag.*, fig. 878, 879.
Syringòdea cruénta *Andr. Heath.*
2 supérba *Roll.*
curviflòra *Andr. Heath.*
1 aurántia.
2 rùbra.
diáphana *Don's Mill.*
Ewer*àna* Andr. Heath.
2 glàbra.
3 speciòsa.
4 longiflòra.
5 pilòsa.
exùdans *Lodd.*

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grandiflòra *Bot. Mag.*
1 hùmilis.
2 supérba.
ignéscens *Andr. Heath.*
? longiflòra *Bot. Cal.*
mammòsa *Andr. Heath.*
2 mìnor.
3 pállida.
4 *r*òsea.
? tùmida *Bot. Reg.*
verticillàta *Andr. Heath.*
2 màjor.
viridéscens *Bot. Cal.*

App. IV. *List of Cape Heaths which are tenderer than those mentioned in the preceding List, and which, when exposed to the Degree of Cold there stated, will be injured by it, but will not suffer, although fully exposed to a Temperature 4 or 5 Degrees below Freezing.* ✱⌴ - - - - 1091

Blæ`r*ia* ericöìdes fig. 880.
E*r*ìca *Blæ`*ria *Wendl. Coll.*
Callísta (*E*rìca *L.*) comòsa *Wendl. Eric.*
1 álba.
2 rùbra.
Coventry*ána* Lodd.
*d*aphneflòra.
múndula *Lodd.*
2 màjor *Lodd.*
pellùcida *Andr. Heath.*
2 rùbra *H. Wob.*
præ′gnans *Bot. Cal.*
2 coccínea *H. Wob.*
Ceràmia (*E*rìca *L.*) urceolàris *Hort. Kew. Icon.* fig. 881
? articulàris *Don's Mill.*
E′ctasis Sebà*na*
E*r*ìca *Sebána aurántia* Andr. Heath.
2 fúsca.
3 lùtea.
4 mìnor.
*E*rìca assúrgens.
barbàta *Andr. Heath.*
2 màjor.
Bonpland*iána* Bot. Cab.
? càfra *Bot. Cab.*
2 spicàta.
cerinthöìdes *Bot. Mag.*
1 màjor *H. Wob.*
2 mìnor *H. Wob.*
nána *H. Wob.*
decòra *Andr. Heath.*
depréssa *Andr. Heath.*
mollíssima.
*P*ersóluta.
2 álba.
3 rùbra.
propéndens *Andr. Heath.*
pubéscens.
1 màjor *H. Wob.*
2 mìnor *H. Wob.*
3 vérna *H. Web.*
quadriflòra.
refléxa.
2 rùbra.
rùbens.
pedunculàris *Sal.*
viscària *Hort. Kew. Icon.*
cylíndrica.
divaricàta *Lodd.*
gélida *Bot. Cab.*
incarnàta *Andr. Heath.*
triviàlis *M'Nab.*
Eurýlepis (*E*rìca *L.*) álbens *Bot. Mag.* fig. 882. *Halicácaba Andr. Heath.*
Eurystègia (*E*rìca *L.*) trìceps *Bot. Cab.* fig. 883.
Gypsocállis (*E*rìca *L.*) nudiflòra *Sm. Icon.*
Lophándra (*E*rìca *L.*) cùbica *Andr. Heath.* fig. 884.
2 mìnor *H. Wob.*
3 màjor *Hort. Brit.*
Lámprotis (*E*rìca *L.*) calycìna *Andr. Heath.* fig. 885.
2 màjor *H. Wob.*
Páchysa (*E*rìca *L.*) báccans *Bot. Mag.*

Page
Syringòdea (*E*rìca *L.*) *a*biétina.
? clavæflòra *Don's Mill.*
colòrans *Bot. Reg.*
concínna *Andr. Heath.*
díscolor *Andr. Heath.*
elàta *Andr. Heath.*
Ewer*ána* Andr. Heath.
2 glàbra.
3 speciòsa.
4 longiflòra.
5 pilòsa.
Linnæ*ána.*
*S. linnæö*ìdes *Andr. Heath.*
S. perspícua Hort. Kew.
2 supérba.
linnæ*öìdes* Andr. Heath.
perspícua *Wendl. Eric.*
2 nàna.
radiàta *Andr. Heath.*
2 díscolor.
simpliciflòra *Wendl. Eric.*
spicàta *Andr. Heath.*
2 pállida *H. Wob.*
tubiflòra *Andr. Heath.*
vestìta.
1 álba.
2 incarnàta.
3 purpùrea.
4 *r*òsea.
5 fúlgida.
6 coccínea.
7 lùtea.
8 mutábilis.
9 élegans.

App. V. *List of a few of the larger Specimens of exotic Heaths, cultivated in the Royal Botanic Garden, Edinburgh; with their Dimensions, &c., as taken from the Plants, 12th July,* 1836. - - - - 1094

App. VI. *Culture of the hardy and half-hardy Species and Varieties of* Eríceæ *belonging to the Group* Eríceæ *normàles.* - 1094

§ ii. ANDROME`DEÆ. - 1105
♣ ♣ ♣▭ ♣⌴ ✱ ✱⌴ ✱ ✱⌴ ✿ ✿
✿⌴ ★ ♠ ♠

IV. ANDRO′MED*A* L. ✿ 1077. 1105
THE ANDROMEDA.
Polifòlia Buxbaum.
Andrómeda sp. L.

1. *p*olifòlia *L.* ✿ Europe fig. 889. 1106
The Poly-leaved-Andromeda, *or Moorwort.*
R*hododéndron* poli*fòlium* Scop.
Wild Rosemary, Poly Mountain, Marsh Cistus, Moorwort, Marsh Holy Rose.
Andromède, Fr. and Ger.
Varieties ✿ - - - 1106
1 angustifòlia *Lodd.* ✿ fig. 890.
2 ericöìdes ✿
3 grandiflòra *Lodd.* ✿ fig. 891.
4 latifòlia *Lodd.* ✿ fig. 892.
5 mínima ✿
6 revolùta *Lodd.* ✿ fig. 893.
7 scótica ✿
8 strícta ✿

2. *r*osmarinifòlia *Pursh.* ✿ Newfoundland 1106
The Rosemary-leaved Andromeda.
A. polifòlia Michx.

Page

V. CASSI'OPE D. Don. 1077. 1107
The Cassiope.
Andrómeda sp. L. et Pall.

1. *h*ypnöìdes *D. Don.* N. Europe fig. 894. 1107
The Hypnum-like Cassiope.
Andrómeda hypnöìdes L. &c.

2. tetragòna *D. Don.* N. America fig. 895. 1107
The four-cornered-*branched* Cassiope.
Andrómeda tetragòna L.

App. i. *Hardy Species of Cassìope not yet introduced.* - - 1107
C. lycopodiöìdes *D. Don.*
Andrómeda lycopodiöìdes Pall.
C. ericöìdes *D. Don.*
Andrómeda ericöìdes Pall.
C. Redówski*i* G. Don.
Andrómeda Redówskii Cham. et Schlecht.
C. Mertens*iàna* G. Don.
*Andrómeda Mertens*iàna *Bongard.*
C. fastigiàta *D. Don.*
Andrómeda fastigiàta Wall. Pl. Par.
Andrómeda cupressifórmis Wall. MSS.

VI. CASSA'NDRA D. Don. 1077. 1108
The Cassandra.
Andrómeda sp. L. and others.

1. calyculàta *D. Don.* North America fig. 896. 1108
The calyculated Cassandra.
Andrómeda calyculàta L.
Varieties - - - 1108
1 ventricòsa *Sims.*
2 latifòlia *Lodd.*
3 nàna *Sims.*

2. (c.) angustifòlia *G. Don.* N. Amer. fig. 897. 1108
The narrow-leaved Cassandra.
Andrómeda calyculàta β angustifòlia Ait.
Andrómeda angustifòlia Pursh.
Andrómeda críspa Desf. et Link.

VII. ZENO'BIA D. Don. 1077. 1108
The Zenobia.
Andrómeda sp. Michx.

1. speciòsa *D. Don.* Carolina fig. 898. 1109
The snowy-*flowered* Zenobia.
Andrómeda speciòsa Michx.
Varieties - - 1109
2 nítida *Pursh.* fig. 899.
3 pulverulénta *Pursh.* f. 900.
Andrómeda pulverulénta Bartr.
Andrómeda cassine*fòlia β* Vent.
Andrómeda speciòsa var. γ glaùca Wats.
Andrómeda dealbàta Lindl.
Andrómeda ovàta Soland MSS.

VIII. LYO'NIA Nutt. 1077. 1109
The Lyonia.
Andrómeda sp. L. and various others.

Page

A. *Leaves evergreen.*

1. ferrugínea *Nutt.* N. America 1109
The rusty-*looking* Lyonia.
Andrómeda ferrugínea Walt.
Andrómeda ferrugínea β fruticòsa Michx.

2. rígida *Nutt.* North America 1110
The rigid-leaved Lyonia.
Andrómeda ferrugínea Willd.
Andrómeda ferrugínea 1 *arboréscens* Mx.
Andrómeda rígida Pursh.

3. marginàta *D. Don.* North America fig. 902. 1110
The marginated-leaved Lyonia.
Andrómeda marginàta Du Ham.
Andrómeda coriàcea Willd.
Andrómeda lùcida Lam.
Andrómeda mariàna Jacq.
Variety - - - 1110
2 rùbra *Lodd.* fig. 900.

B. *Leaves deciduous.*

4. mariàna *D. Don.* North America fig. 903. 1110
The Maryland Lyonia.
Andrómeda mariàna L.
Variety - - - 1111
2 oblónga *Swt.*

5. racemòsa *D. Don.* N. America 1111
The racemose-*flowered* Lyonia.
Andrómeda racemòsa L.
Andrómeda paniculàta Walt.

6. arbòrea *D. Don.* N. America 1111
The Tree Lyonia.
Andrómeda arbòrea L.

7. paniculàta *Nutt.* N. Am. f. 904. 1111
The panicled-*flowered* Lyonia.
Andrómeda paniculàta L.

8. *s*alicifòlia *Wats.* N. Am. f. 905. 1111
The Willow-leaved Lyonia.

9. frondòsa *Nutt.* N. America 1112
The branchy Lyonia.
Andrómeda frondòsa Pursh.

10. multiflòra *Wats.* North America fig. 906. 1112
The many-flowered Lyonia.

11. capreæfòlia *Wats.* North America fig. 907. 1112
The Goat-Willow-leaved Lyonia.

App. i. *Doubtful Species of Lyònia not yet introduced.* - - 1112
L. rhomböidàlis *G. Don.*
Andrómeda rhomböidàlis N. Du Ham.

IX. LEUCO'THÖE D. Don. 1077. 1113
The Leucothöe.
Andrómeda sp. of authors previously.

1. axillàris *D. Don.* North America fig. 908. 1113
The axillary-*racemed* Leucothöe.
Andrómeda axillàris Solander.

Page
Variety ♣ - - - 1113
2 longifòlia ♣
Andrómeda longifòlia Pursh.
Andrómeda Wálteri Willd.

2. spinulòsa *G. Don.* ⌂ North America fig. 909. 1113
The spinulose-*tooth-leaved* Leucothöe.
Andrómeda spinulòsa Pursh.
Andrómeda Catesbæ'i Walt.

3. acuminàta *G. Don.* ♣ North America fig. 910. 1113
The acuminate-*leaved* Leucothöe.
Andrómeda acuminàta Ait.
Andrómeda lùcida Jacq.
Andrómeda populifòlia Lam.
Andrómeda reticulàta Walt.
Andrómeda formosíssima Bartr.
Andrómeda laùrina Michx.
Pipe-stem-wood, Amer.

4. floribúnda *D. Don.* ♣ North America fig. 911. 1114
The numerous-flowered Leucothöe.
Andrómeda floribúnda Lyons.

5. spicàta *G. Don.* ♣ N. Am. f. 912. 1114
The spicate-*racemed* Leucothöe.
Andrómeda spicàta Wats.

X. PI'ERIS *D. Don.* ↟ - 1077. 1114
The Pieris.
Andrómeda sp. Wallich.

1. ovalifòlia *D. Don.* ↟ Nepal f. 913. 1115
The oval-leaved Pieris.
Andrómeda ovalifòlia Wall.
Andrómeda capricìda Ham. MSS.

App. i. *Half-hardy Species of Pìëris not yet introduced.* - - 1115
P. formòsa *D. Don.*
Andrómeda formòsa Wall.
P. lanceolàta *D. Don.*
Andrómeda lanceolàta Wall.
Andrómeda squamulòsa D. Don.
P. japónica *D. Don.* fig. 914.
Andrómeda japónica Thunb.

XI. PHYLLO'DOCE Sal. ⌂ ⌇ 1077. 1115
The Phyllodoce.
Andrómeda sp. L.
Menzièsia sp. Swartz and Smith.

1. taxifòlia *Sal.* ⌂ Europe f. 915. 1115
The Yew-leaved Phyllodoce.
Menzièsia cærùlea Swz.
Andrómeda cærùlea L.
Andrómeda taxifòlia Pall.
Erìca cærùlea Willd.

2. empetrifórmis *D. Don.* ⌇ N. America fig. 916. 1116
The Empetrum-like Phyllodoce.
Menzièsia empetrifórmis Sm.

XII. DABŒ'CIA D. Don. ⌂ 1077. 1116
The Dabœcia.
Erìca sp. Lin.
Andrómeda sp. Lin.
Menzièsia sp. Juss.

1. polifòlia *D. Don.* ⌂ Ireland fig. 917, 918. 1116
The Poly-leaved Dabœcia.
Andrómeda Dabœ'cia Lin. Syst.
Erìca Dabœ'cia Lin. sp.
Menzièsia Dabœ'cia Dec.
Erìca hibérnica, &c., Ray.
Page
Menzièsia polifòlia Juss.
Vaccínium cantábricum Huds.
Irish Whorts, Cantabrian Heath, Saint Dabeoc's Heath.
Variety ⌂ - - - 1116
2 flòre álbo *Swt.* ⌂

XIII. A'RBUTUS *Camer.* ↟ ↟⊔ ♣ ♣⊔ - - - 1077. 1117
The Arbutus, *or Strawberry Tree.*
Andráchne Clus.
A'rbutus sp. L.
Arbousier, Fr.
Sandbeere, Ger.
Abbatro, Ital.

1. U'nedo *L.* ↟ ♣ S. Europe f. 919. 1117
The Unedo Arbutus, *or Strawberry Tree.*
L'Arbousier commun, Arbousier des Pyrénées, Fraisier en Arbre, Fr.
Erdbeereartige Sandbeere, Ger.
Komaû, Mod. Greek.
Varieties. ↟ ♣ - - 1117
1 álbus *Ait.* ↟ ♣
2 rùber *Ait.* ↟ ♣
3 plènus *Ait.* ♣
4 schizopétalus ♣
5 integrifòlius *Sims.* ♣
6 críspus ♣
7 salicifòlius ♣

2. hýbrida *Ker.* ↟ ♣ Hybrid pl. 192. fig. 920. 1119
The hybrid Arbutus.
A. *andrachnöìdes* Link.
Variety ↟ ♣ - - 1120
2 Mílleri ↟ ♣
A. *Mílleri Mayes.*

3. *A*ndráchne *L.* ↟ Levant pl. 193. 120
The Andrachne Arbutus.
A. *integrifòlia* Lam.
Andráchne Theophrásti Clus.
Andráchne Park. Theatr.
Adrachnē of Theophrastus.
Andrachla, Mod. Greek.
Varieties - - - 1120
1. With serrated leaves *Tourn.*
2. With large oblong fruit, *Tourn.*
3. With large compressed fruit, *Tourn.*
2 serratifòlia fig. 821 ↟ ⊔
A. serratifòlia Nois.

4. procèra *Douglas.* ♣ N. America 1121
The tall Arbutus.

5. tomentòsa *Pursh.* ♣ N. America 1122
The downy Arbustus.
Arctostáphylos tomentòsa Lindl.
Variety ♣ - - - 1122
2 nùda *Hook. et Arn.* ♣

6. densiflòra *H. B. et Kunth.* ♣⊔ Mexico 1122
The densely-flowered Arbutus.

App. i. *Hardy Species of A'rbutus not yet introduced.* - - 1122
A. laurifòlia L.
A. Menzièsii Pursh.
A. cordifòlia
Arctostáphylos cordifòlia Lindl.
A. glaúca
Arctostáphylos glaúca Lindl.

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App. ii. *Half-hardy Species of* A′*rbutus*. 1122

A. canariénsis *Lam.* ✹ ⊔ fig. 922.
A. petiolàris *H. B. et Kunth.*
A. fùrens *Hook. et Arn.*
A. xalapénsis *H. B. et Kunth.*
A. móllis *H. B. et Kunth.*
A. ferruginea *L.*

XIV. *A*RCTOSTA′PHYLOS *Adans.* ⚘ ⌒ - - - 1078. 1123
THE BEARBERRY.
U′va-úrsi Dod.
A′*rbutus sp.* L.

1. U′va-úrsi *Spreng.* ⌒ Europe fig. 923. 1123
The *common* Bearberry.
A′*rbutus U′va-úrsi* L.
A′*rbutus* bu*xifòlia* Stokes.
U′va-úrsi bu*xifòlia* Sal.
Bear berries, *Bear-whortle-berries*, Eng.
Barentraube, *Barenbeere*, Ger.
Beerenduuif, Dutch.
La Basserole. Fr.
U′va d'Orzo, Ital.
U′va de Oso, Span.
Uva de Ursa, Port.
Uva-ursi, in works of most old Botanists.

2. alpìna *Spreng.* ⚘ Europe - 1123
The Alpine Bearberry.
A′*rbutus alpìna* L.

App. i. *Half-hardy Species of* A*rctostáphylos not yet introduced.* - - 1124

A. polifòlia *H. B. et Kunth.*
Andrómeda ledifòlia Humb.
A. glaucéscens *H. B. et Kunth.*
A. púngens *H. B. et Kunth.*
A. Hoókeri G. Don.
A′*rbutus púngens* Hook.

XV. PERNE′TTY*A* Gaud. ✹ ⊔ ⌒ 1078. 1124
THE PERNETTYA.

1. mucronàta *Gaud.* ⌒ Terra del Fuego fig. 924. 1124
The mucronate-*leaved* Pernettya.
A′*rbutus mucronàta* L.

2. pilòsa *G. Don.* Mexico - - 1124
The pilose, *or hairy*, Pernettya.
A′*rbutus pilòsa* Grah.

App. i. *Hardy Species of Pernéttya not yet introduced.* - - 1125

P. microphýlla *Gaud.*
A′*rbutus microphýlla* Forst.
A′*rbutus serpyllifòlia* Lam.
P. *M*yrsinìtes *G. Don.*
Andrómeda M*yrsinìtes* Lam.

App. ii. *Half-hardy Species of Pernéttya*. 1125

P. empetrifòlia *Gaud.*
A′*rbutus empetrifòlia* Lindl.
A′*rbutus pùmila* Willd.
Andrómeda empetrifòlia Lam.
P. pùmila *Gaud.* ✹ ⊔
A′*rbutus pùmila* Forst.
P. Cavanillesi*àna* G. Don.
Andrómeda prostràta Cav.
P. purpùrea *D. Don.*
P. ciliàris *D. Don.*

XVI. GAULTHE′R*IA* L. ⌓ ⸙ 1078. 1125
THE GAULTHERIA.

1. procúmbens *L.* ⸙ North America fig. 925. 1125
The procumbent Gaultheria.
Partridge Berry, Mountain Tea, Spring Winter Green, Sm.

2. *Shallon* Pursh. ⌓ N. Am. f. 926. 1126
The Shallon Gaultheria.

App. i. *Half-hardy Species of Gaulthèria*. 1126

G. fragrantíssima *D. Don.* ♣ ⊔
G. fràgrans D. Don.
A′*rbutus laurifòlia* Hamil.

App. ii. *Hardy and half-hardy Species of Gaulthèria, not yet introduced.* - 1126

G. nummulariöides *D. Don.*
G. ciliàta *Cham. et Schlecht.*
Several other Species

XVII. EPIGÆ′A *L.* ⸙ - 1078. 1126
THE EPIGÆA.
Memécylum Michx.
May Flower, Nova Scotia.

1. rèpens *L.* ⸙ North America - 1127
The creeping Epigæa.

XVIII. PHALEROCA′RPUS *G. Don.* ⸙ - - - 1078. 1127
THE PHALEROCARPUS.
Vaccínium L.
Gaulthèria Pursh.
Oxycóccus Nutt.
A′*rbutus* Lam.

1. serpyllifòlia *G. Don.* ⸙ N. Amer. 1127
The Wild-Thyme-leaved Phalerocarpus.
Vaccínium hispídulum L.
Gaulthèria serpyllifòlia Pursh.
A′*rbutus filifórmis* Lam.
Oxycóccus hispídulus Pers.

XIX. *C*LE′THRA *L.* ♣ ☐ ✺ ✺ ⊔ ✹ ⊔ 1078. 1127
THE CLETHRA.
Cuellària *R. et P.*

1. *a*lnifòlia *L.* ✺ N. Amer. f. 927. 1128
The Alder-leaved Clethra.
C. *alnifòlia var. α denudàta* Ait.

2. (*a.*) tomentòsa *Lam.* ✺ N. America fig. 928, 929. 1128
The downy Clethra.
C. *alnifòlia β pubéscens* Ait.
C. *incàna* Pers.

3. (*a.*) paniculàta *Ait.* ✺ N. Amer. 1128
The panicled-*flowered* Clethra.

4. (*a.*) acuminàta *Michx.* ✺ N. America 1128
The acuminated-*leaved* Clethra.
C. *montàna* Bartr.

5. (*a.*) scàbra *Pers.* ✺ North America 1128
The rough-*leaved* Clethra.

App. i. *Half-hardy Species of Clèthra*. 1129

C. arbòrea *Ait.* ✹ ⊔ fig. 930.
C. ferrugínea *R. et P.* ✺ ⊔
C. tinifòlia *Swartz.* ♣ ☐
Tìnus occidentàlis L.
Other species of Clèthra

App. I. *Half-hardy Genera belonging to the Section* E*rícеæ and § Andromèdeæ of the Order* E*ricàceæ.* - - - - 1129

Agarísta buxifòlia *G. Don.* ✹ ⊔
Andrómeda bu*xifòlia* Lam.

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Sect. II. *Rhodo'reæ*. - 1129

XX. *R*HODODE'NDRON *L.* - 1078. 1130
The Rhododendron, *or Rose Bay*.
Azàlea sp. of authors.
Rhodòra L.
Chamærhododéndros Tourn.
Rhododendron, Fr., Ital., and Span.
Alpbalsam, Ger.

§ i. *Pónticum* D. Don. 1131

1. pónticum *L.* Pontus fig. 931. 1131
The Pontic Rhododendron.
Varieties - - 1131
2 obtùsum *Wats.*
3 myrtifòlium *Lodd.*
4 Smíth*ii* Swt.
5 Lòw*ii* Gard. Mag.
6 azaleöìdes
R. *azaleöìdes* Desf.
R. *p. subdecíduum* Andr.
Subvariety ?
R. p. a. odoràtum *Lodd. Cat.*
Nursery Varieties.
álbum - - - - 1131
angustifòlium - - - 1131
angustissimum - - - 1131
arbutifòlium - - - 1131
bromeli*æfolium* - - - 1131
bullàtum - - - 1131
*cassinæ*fòlium - - - - 1131
cærulèscens - - - 1131
contórtum - - - 1131
críspum - - - 1131
fl. plèno - - - 1131
fol. argénteis - - - 1131
fol. aúreis - - - 1131
fol. marginàtis - - - - 1131
frondòsum - - - 1131
grandiflòrum - - - 1131
incarnàtum - - - 1131
intermèdium - - - - 1131
Kalmi*æfòlium* - - - 1131
macrophýllum - - - 1131
nivàticum - - - - 1131
obtùsum - - - 1131
pygmæ'um - - - - 1131
ròseum - - - 1131
salicifòlium - - - 1131
spectábile - - - - 1131
violàceum - - - 1131

2. máximum *L.* N. Amer. f. 932. 1134
The largest Rhododendron.
Varieties - - - 1131
2 álbum *Hort.*
3 hýbridum *Hook.*
R. *frágrans* Hort.
R. *hýbridum* Lodd.

3. (m.) purpùreum *G. Don.* N. Am. 1135
The purple-*flowered* Rhododendron.
R. *máximum γ purpùreum* Pursh.
R. *pónticum macrophýllum* Lodd.

4. Púrsh*ii* G. Don. North America 1135
Pursh's Rhododendron.
R. *máximum β álbum* Pursh.

5. catawbiénse *Michx.* North America fig. 933. 1135
The Catawba Rhododendron.
Varieties - - - 1135
2 Russelli*ànum* Brit. Fl.-Gard.
3 tigrìnum *Hort.*

6. chrysánthum *L.* Siberia - 1135
The golden-flowered Rhododendron.
R. *officinàle* Salisb.

7. caucásicum *Pall.* Caucasus fig. 934. 1136
The Caucasian Rhododendron.
Varieties - - 1136
2 stramíneum *Hook.*
3 pulchérrimum *Lindl.*
4 Nobleà*num* Hort.

8. punctàtum *Andr.* North America fig. 935. 1136
The dotted-*leaved* Rhododendron.
R. *ferrugíneum var. mìnus* Pers.
R. *mìnus* Michx.
R. *punctàtum var. mìnus* Wats.
Variety - - - 1137
2 màjus *Ker.*

9. ferrugíneum *L.* Eur. f. 936. 1137
The rusty-*leaved* Rhododendron.
Variety - - - 1137
2 álbum *Lodd.*

10. (?f.) hirsùtum *L.* fig. 937. 1137
The hairy Rhododendron.
Variety - - - 1137
2 variegàtum

11. setòsum *D. Don.* Nepal - 1137
The bristly Rhododendron.
R. macrophýllum *D. Don.* - - - 1138

§ ii. *Lepípherum* D. Don. 1138

12. lappónicum *Wahl.* N. Europe fig. 938. 1138
The Lapland Rhododendron.
Azàlea lappónica L.
Azàlea ferrugínea Hort.

13. däùricum *L.* Siberia f. 939. 1138
The Dahurian Rhododendron.
Variety - - - 1139
2 atrovìrens *Ker.*
R. lepidòtum *Wall.* - - - 1139

§ iii. *Chamæcístus* D. Don. - 1139

14. camtscháticum *Pall.* Kamtschatka fig. 940. 1139
The Kamtschatka Rhododendron.

15. Chamæcístus *L.* Eur. f. 941. 1139
The Ground-Cistus Rhododendron.

§ iv. *Pentanthèra* D. Don. 1139

16. flàvum *G. Don.* (Azàlea póntica *L.*) Levant - - fig. 942. 1140
The Pontic, *or common*, Azalea.
Azàlea póntica L. Sp.
Azàlea arbòrea L. Sp., ed. 1.
Varieties and Hybrids.
A. p. 2 álba - - - 1140
3 auràntia - - 1140
4 crocàta - - - 1140
5 cùprea - - - 1140
6 flámmea - - - 1140
7 fúlgens - - - 1140
8 glaùca - - - 1140
9 ignéscens - - - 1140
10 ochroleùca - - - 1140
11 pállida - - - 1140
12 trícolor - - - 1140

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17. nudiflòrum *Torr.* (Azàlea nudiflòra *L.*) ✿ N. America fig. 943. 1140
The naked-flowered Azalea.
Azàlea nudiflòra L.
Azàlea periclymenöìdes Michx.
The American Honeysuckle.
May Flowers; Wild, or *upright*, *Honeysuckle*, Amer.

Varieties and Hybrids - 1141
1 coccíneum *D. Don.* ✿
Azàlea n. coccínea Sims.
2 rùtilans *D. Don.* ✿
Azàlea n. rùtilans Ait.
Azàlea periclymenöìdes rùtilans Pursh.
3 cárneum *D. Don.* ✿
Azàlea n. cárnea Ait.
Azàlea p. *cárnea* Pursh.
4 álbum *D. Don.* ✿
Azàlea n. álba Ait.
Azàlea p. *álba* Ait.
5 papilionàceum *D. Don.* ✿
Azàlea p. *papilionàcea* Pursh.
6 partìtum *D. Don.* ✿
Azàlea p. *partìta* Pursh.
7 polyándrum *D. Don.* ✿
Azàlea p. *polyándra* Pursh.
8 Gove*niànum* D. Don. ✿ f. 944.
9 rùbrum *Lodd.* ✿
10 exímium *D. Don.* ✿

Varieties and Hybrids, according to Lodd. Cat.

A. v. 2 álba et rùbra - - - 1142
3 amœ`na - - - 1142
4 blánda - - - - 1142
5 cárnea - - - 1142
6 caroliniàna - - - 1142
7 Cobúrg*ia* - - - 1142
8 coloràta - - - 1142
9 conspícua - - - 1142
10 críspa - - - 1142
11 cùmula - - - 1142
12 discolor - - - 1142
13 fastigiàta - - - 1142
14 flòre plèno - - - 1142
15 flórida - - - - 1142
16 globòsa - - - 1142
17 grandiflòra - - - 1142
18 incàna - - - 1142
19 incarnàta - - - 1142
20 mirábilis - - - 1142
21 montàna - - - 1142
22 ochroleùca - - - 1142
23 pállida - - - - 1142
24 pallidòsa - - - 1142
25 papilionàcea - - - 1142
26 periclymenöìdes - - - 1142
27 purpuráscens - - - 1142
28 purpùrea - - - - 1142
29 *r*òsea - - fig. 915. 1142
30 rubérrima - - - 1142
31 rubicúnda - - - 1142
32 rùbra - - - - 1142
33 rùfa - - - 1142
34 rùtilans - - - - 1142
35 serótina - - 1142
36 stamínea - - - 1142
37 stellàta - - - 1142
38 trícolor - - - - 1142
39 vària - - - 1142
40 variábilis - - - 1142
41 variegàta - - - 1142
42 versícolor - - - 1142
43 violàcea - - - 1142

18. bícolor *G. Don.* (A. (n.) bícolor *Pursh.*) ✿ Carolina - - 1142
The two-coloured-*flowered* Azalea.
Azàlea bícolor Pursh.
Azàlea n. bícolor Ait.

19. calendulàceum *Torr.* (A. (n.) calendulàcea *Michx.*) ✿ Carolina fig. 946. 1142
The Marigold-*flowered* Azalea.
Azàlea calendulàcea Michx.
Azàlea nudiflòra var. coccínea Ait.

Varieties ✿ - - 1142
2 Mortèr*ii* Swt. ✿
3 fúlgidum *Hook.* ✿
A. c. fúlgida Hort.

20. canéscens *G. Don.* (A. (n.) canéscens *Michx.*) ✿ Carolina - 1143
The canescent Azalea.
Azàlea canéscens Michx.

21. viscòsum *Torr.* (A. viscòsa *L.*) ✿ North America - fig. 947. 1143
The clammy-*flowered* Azalea.
Azàlea viscòsa L.

Varieties ✿ - - 1143
2 ornàtum *Swt.* ✿

Varieties and Hybrids, according to Lodd. Cat.

A. *Varieties.*

A. v. 2 álba - - - - 1143
3 críspa - - - 1143
4 dealbàta - - - 1143
5 penicillàta - - - 1143
6 præ`cox - - - 1143
7 pubéscens - - - - 1143
8 variegàta - - - 1143
9 vittàta - - - 1143
10 vìolæ odòre - - - 1143

B. *Hýbridæ altaclerénses. Hybrids raised at High Clere.*

11 amœ`na - - - 1143
12 actinàta - - - 1143
13 auròræ - - - - 1143
14 basilíssa - - - 1143
15 calodéndron - - - 1143
16 calocóryphe - - - 1143
17 Cartòn*ia* - - - - 1143
18 chariéssa - - - 1143
19 coccínea nóbilis - 1143
20 eudæ`mon - - - 1143
21 eùprepes - - - 1143
22 Govèn*ia* - - - 1143
23 Herbert*iàna* - - 1143
24 imperàtrix - - - 1143
25 ínclyta - - - 1143
26 jasminodòra - - - 1143
27 lépida - - - 1143
28 ochroleùca - - - 1143
29 poíkila - - - 1143
30 póntica *Howard* - - - 1143
hexapla.
31 pulchélla - - - 1143
32 regàlis - - - - 1143
33 rùgens - - - 1143
34 thyrsiflòra - - - - 1143

C. *Hýbridæ bélgicæ. Hybrids raised in Belgium.*

35 Agate - - - 1143
36 álbo pleno - - - 1143
37 amábilis - - 1143
38 *a*marántina - - - 1143
39 amœníssima - - 1143
40 árdens - - - 1143
41 àtro-rùbens - - 1143
42 aurántia máxima - - 1143
43 blándida - - - 1143
44 calendulàcea globòsa - - 1143
insígnis.
nòva.
supérba.
45 cárdon - - - 1143
46 coccínea máxima - - - 1143
speciòs.
47 concínna - - 1143
48 corúscans - - - 1143
49 *c*ròcea - - 1143
globòsa.
50 cruénta - - 1143
51 cùprea - - 1143
álba.
élegans.
exímia.
globòsa.
rùbra.
spléndens.
52 decoràta - - - 1143
53 dècus hortòrum - - 1143
54 dulcèdo - - - 1143
55 eléсta - - - 1143
56 elegantíssima - - - 1143
57 exquisìta - - - 1143
58 Ferróck*ii* - - - 1143
59 flamboyante - - - 1143

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A. v. 60 fúlgida - - - - 1143
61 fúlva - - - - 1143
62 glòria múndi - - - 1143
máxima.
minor.
63 Guliélmus primus - - 1143
64 hýbrida coccífera - - - 1143
coccínea.
nivea.
65 incarnàta máxima - - 1143
rùbra.
66 lépida - - - 1143
67 lùtea rubicúnda - - - 1143
68 magnífica - - - 1143
69 marítima incarnàta - - 1143
70 miniàta - - - 1143
71 mirábilis - - - 1144
72 míxta triúmphans - - 1144
73 miniàta - - - 1144
74 Mortèrii - - - - 1144
75 nè plús últra - - - 1144
76 nóbilis - - - 1144
77 nóritas antilléscens - - - 1144
78 noritàta - - - 1144
79 óptima - - - - 1144
80 ornàta pállida - - - 1144
81 picturàta - - - 1144
82 póntica globòsa - - - 1144
konink.
tricolor var.
83 præstantíssima - - 1144
84 pulchélla - - - 1144
85 punicea - - - 1144
86 récqui - - - 1144
87 regina bélgica - - 1144
88 restantíssima - - - 1144
89 rígida incarnàta - - 1144
90 robústa - - - 1144
91 rùbra aurántia - - 1144
fulva.
92 rubricàta - - - 1144
93 sanguínea - - - 1144
94 Satúrni - - - - 1144
95 sevèra - - - 1144
96 speciòsa - - - - 1144
97 speciosíssima - - - 1144
98 spléndens - - - 1144
99 spléndida - - - 1144
100 sulphùrea - - - 1144
101 supérba - - - 1144
102 tricolor Jacòbi - - - 1144
Wolff.
103 triúmphans - - - 1144
104 variegàta - - - 1144
105 venústa - - - - 1144
106 venustíssima - - - 1144
107 versícolor - - - 1144

22. glaúcum *G. Don.* (A. (v.) glaúca *Ph.*) ✿ North America - - 1144
The glaucous-*leaved* Azalea.
Azàlea glaúca Pursh.
Azàlea viscòsa var. floribúnda Ait.

23. híspidum *Torr.* (A. (v.) híspida *Ph.*) ✿ North America fig. 948. 1144
The hispid Azalea.
Azàlea híspida Pursh.
Azàlea viscòsa var. glaúca Ait.

24. nítidum *Torr.* (A. nítida *Ph.*) ✿ North America - fig. 949. 1144
The glossy-*leaved* Azalea.
Azàlea nítida Pursh.

25. speciòsum *G. Don.* (A. speciòsa *Willd.*) ✿ N. Amer. f. 950. 1145
The showy Azalea.
Azàlea speciòsa Willd.
Azàlea coccínea Lodd.

26. arboréscens *Torr.* (A. arboréscens *Pursh.*) ✿ North America 1145
The arborescent Azalea.
Azàlea arboréscens Pursh.

§ v. R*hodòra* D. Don. ♀ └┘ ✿ └┘ 1145

27. *R*hodòra *G. Don.* (*R*hodòra canadénsis *L.*) ✿ N. Amer. f. 951. 1145
The Canada Rhodora.
Rhodòra canadénsis L.

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App. i. *Half-hardy Species of* R*hododéndron (and Azàlea).* - - 1146

§ i. Boòram. ♀ └┘ ✿ └┘

A. *Species already introduced into British Gardens.*

28. arbòreum *Smith.* ♀ └┘ Nepal fig. 951. 1146
The *scarlet-flowered* Tree Rhododendron.
R. *purpùreum* Hamilt. MSS.
Varieties and Hybrids ♀ └┘ 1146
1 sanguíneum *Lindl.* ♀ └┘
2 ròseum *Swt.* ♀ └┘
3 níveum *Swt.* ♀ └┘
R. *álbum* Hamilt. MSS.
R. *a. fl. níveis* D. Don.
R. *a. álbum* Wall.
4 cinnamòmeum ♀ └┘
R. *cinnamòmeum* Wall.
5 venústum *D. Don.*
Other Varieties and Hybrids of R. *arbòreum and other half-hardy Species* - - 1147
R. a. altaclerénse. fig. 952.

29. campanulàtum *D. Don.* ✿ └┘ Nepal fig. 953. 1147
The bell-shaped-*flowered* Rhododendron.
R. barbàtum *Wall.* - - - - - 1148
R. zeylánicum *Lodd.* - - - - - 1148
R. stríctum *Lodd.* - - - - - 1148

B. *Species not yet introduced.*
R. formòsum *Wall.* - - - - 1148
R. linearifòlium *Poir.* - - - - 1148

§ ii. *Pogonánthum.* ✿

30. anthopògon *D. Don.* ✿ Nepal fig. 954. 1148
The bearded-flowered Rhododendron.
R. *aromáticum* Wall.

§ iii. *Tsutsútsi* D. Don.
✿└┘ ✿└┘ ✿└┘ ✱ ✿

A. *Indian half-hardy Azaleas in British Gardens.*

31. índicum *Swt.* (A. índica *L.*) ✿└┘ China fig. 955. 1148
The Indian Azalea.
Azàlea índica L.
Varieties and Hybrids ✿└┘ 1149
2 phœníceum *Don's Mill.* ✿ └┘
Azàlea índica phœnícea Swt.
Azàlea ledifòlia phœnícea Hook.
3 flòre pleno ✿ └┘
Azàlea índica fl. plèno Hook.
4 *l*edifòlium fig. 956. ✿ └┘
R. *ledifòlium* Don's Mill.
A. i. álba Lindl.
A. ledifòlia Hook.
R. *leucánthum* Bunge.
5 púlchrum *Don's Mill.* ✿ └┘
A. i. púlchra Hort.
R. *púlchrum* Swt.
R. *i. var. γ Smíthii Swt.*
6 ignéscens *Swt.* ✿ └┘
A. i. ignéscens Hort.
7 aurantìacum *G. Don* ✿ └┘
A. i. aurantìaca Hort.
8 lùteum *Swt.* ✿ └┘
A. i. lùtea Hort.
9 spathulàtum *Blum.* ✿ └┘
A. i. spathulàta Hort.
10 grandiflòrum *Blum.* ✿ └┘
A. i. grandiflòra Hort.
11 angustifòlium *Blum.* ✿ └┘
A. i. angustifòlia Hort.
12 floribúndum *Blum.* ✿ └┘
A. i. floribúnda Hort.
13 Daniels*iànum* ✿ └┘
A. i. Danielsiàna Paxton.
14 lateritium ✿ └┘
A. i. lateritia Lindl.
15 variegàtum *Blum.* ✿ └┘
A. i. variegàta Lindl.
16 speciòsum *D. Don.* ✿ └┘
A. i. speciòsa Hort.

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32. sinénse *Swt.* (A. sinénsis *Lodd.*) ✱ └┘ China - - fig. 957. 1149
The Chinese Azalea.
Azàlea sinénsis Lodd.
Varieties and Hybrids ✱└┘ ✳ ⚘ - - - 1149
2 flavéscens *Swt.* ✱ └┘
A. s. 2 flavéscens.
3 macránthum *Don's Mill.* ✳ └┘
Azàlea macrántha Bunge.
R. *nìtens* D. Don MSS.

R. reticulàtum *D. Don MSS.* ⚘ └┘ - - 1150
Azàlea reticulàta Hort.
R. Fárreræ Tate. ✳ └┘ - - fig. 958. 1150
Azàlea Fárreræ Hort.
R. decúmbens *D. Don MSS.* ✳ - - - 1150
Azàlea decúmbens Hort.

B. *Indian Azaleas not yet introduced.*
R. scàbrum *Don's Mill.* ✱ └┘ - - - 1150
Azàlea scàbra.
R. *máximum* Thunb.
R. mucronàtum *G. Don.* ✱ └┘ - - 1150
Azàlea mucronàta Blum.
? R. *ledifolium* (*A. i. álba* Lindl.).
R. Burmánni G. Don. ✱ └┘ - - - 1150
Azàlea rosmarinifòlia Burm.
R. móllis *G. Don.* ✱ └┘ - - - 1150
Azàlea móllis Blum.
R. Loureiriàna G. Don. ✱ └┘ - - - 1150
Azàlea punctàta Lour.

§ iv. *Propagation and Culture of the half-hardy Species of* Rhododéndron *and* Azàlea.

XXI. KA'LM*IA* L. ✱ ✳ ⚘ 1078. 1151
The Kalmia.
American Laurel.

1. latifòlia *L.* ✱ N. Amer. f. 959. 1151
The broad-leaved Kalmia.
Mountain Laurel, Calico Bush, Calico Flower, Amer.

2. angustifòlia *L.* ✱ N. Am. f. 960. 1152
The narrow-leaved Kalmia.
Sheep Laurel, Amer.
Variety ✱ - - - 1152
2 ovàta *Pursh.* ✱

3. glaúca *Ait.* ⚘ N. Amer. f. 961. 1152
The glaucous-*leaved* Kalmia.
K. polifòlia Wangh.
Variety ⚘ - - 1152
2 rosmarinifòlia *Pursh.* ⚘

4. cuneàta *Michx.* ✳ N. America 1152
The wedge-shaped-*leaved* Kalmia.

5. hirsùta *Walt.* ✱ N. Am. f. 962. 1152
The hairy Kalmia.
K. ciliàta Bartr.

XXII. MENZIE'S*IA* Smith. ✱
The Menziesia. 1078. 1152

1. ferrugínea *Sm.* ✱ N. Am. f. 963. 1153
The rusty-*flowered* Menziesia.
M. urceolàris Salisb.

2. globulàris *Salisb.* ✱ N. America 1153
The globular-*flowered* Menziesia.
*M. Smith*ii *Michx.*
Azàlea pilòsa Lam.
M. pilòsa Pers.

XXIII. AZA'LEA *D. Don.* ✳
The Azalea. 1078. 1153
Azàlea procúmbens L. and many authors.
*Loiseleùr*ia *Desf.*
Chamælèdon Link.

1. procúmbens *L.* ✳ Britain and North America - - fig. 964. 1154
The procumbent Azalea.

XXIV. LEIOPHY'LLUM *Pers.* ⚘
The Leiophyllum. 1078. 1154
Ammýrsine Pursh.
Fischera Swartz.
Lèdum buxifòlium Berg.

1. thymifòlium *Pers.* ⚘ North America fig. 965. 1154
The Thyme-leaved Leiophyllum.
Lèdum buxifòlium Berg.
Lèdum thymifòlium Lam.
Lèdum serpyllifòlium L'Hérit.
Ammýrsine buxifòlia Pursh.
Sand Myrtle, New Jersey.

L. prostràtum ⚘ - - - 1155
Ammýrsine prostràta Swt.
Ammýrsine Lyòni Swt.

XXV. *LE'DUM L.* ✱ ⚘ 1078. 1155
The Ledum.

1. palústre *L.* ⚘ N. Amer. f. 966. 1155
The Marsh Ledum.
Lèdum silesìacum Clus.
Rosmarìnum sylvéstre Cam.
Variety ⚘ - - 1155
2 decúmbens *Ait.* ⚘

2. latifòlium *Ait.* ✱ N. Am. f. 967. 1155
The broad-leaved Ledum, *or Labrador Tree.*
L. *grœnlándicum* Retz.
L. *palústre* Michx.
Labrador Tea, Amer

3. canadénse *Lodd.* ⚘ N. Am. f. 968. 1156
The Canadian Ledum.

Sect. III. *Vaccinieæ D. Don.* 1156
✳ ✱ ✱□ ✱└┘ ✱┘ ⚘ ⚘ ⚘ ⚘┘

XXVI. *VACCI'NIUM L.* ✳ ✱ ✱□ ✳ ⚘ ⚘ ⚘┘ - 1078. 1156
The Whortleberry.
Vìtis idæ'a Tourn.
Airelle, Fr.
Heidelbeere, Ger.

A. *Leaves deciduous.* ✳

1. Myrtíllus *L.* ✳ Europe fig. 969. 1156
The Little-Myrtle-*like* Whortleberry, *or common Bilberry, or Bleaberry.*
Variety ✳ - - 1157
2 báccis álbis ✳

2. uliginòsum *L.* ✳ Europe f. 970. 1157
The bog Whortleberry, *or great Bilberry.*
Myrtíllus grándis Bauh.

3. angustifòlium *Ait.* ✳ N. Amer. 1158
The narrow-leaved Whortleberry.
V. *Myrtíllus* Michx.

4. cæspitòsum *Michx.* ✳ N. Amer. 1158
The tufted Whortleberry.

5. *galèzans* Michx. ✳ N. America 1158
The Gale-like Whortleberry.
V. *galifórmis* Smith.

6. tenéllum *Ait.* ✳ N. Amer. f. 971. 1158
The delicate Whortleberry.
V. *pennsylvánicum* Lam.
Variety - - 1159

7. *ligústrinum Michx.* ✳ N. Amer. 1159
The Privet-like Whortleberry.

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8. pállidum *Ait.* North America 1159
The pale-*flowered* Whortleberry.
9. arbòreum *Marsh.* N. America 1159
The Tree Whortleberry.
V. *diffùsum* Ait.
10. stamíneum *L.* N. Am. f. 972. 1159
The *long*-stamened Whortleberry.
V. *álbum* Pursh.
V. *elevàtum* Banks.
Variety - - - 1160
2 álbum *H. B. et Kunth.*
11. dumòsum *Ait.* N. Am. f. 973. 1160
The bushy Whortleberry.
V. *frondòsum* Michx.
V. *hirtéllum* Ait.
Variety - - - 1160
2 hùmile *Wats.*
12. corymbòsum *L.* North America fig. 974, 975. 1160
The corymbose-*flowered* Whortleberry.
V. *amœ̀num* Ait.
V. *disomórphum* Michx.
V. *elevàtum* Hort.
V. *álbum* Lam.
Varieties - - - 1161
2 virgàtum *Ait.* fig. 976.
3 fuscàtum *Ait.* fig. 977.
V. *formòsum* Andr.
V. *virgatum* Wats., not of Ait.
4 angustifòlium.
V. *virgàtum var. angustifòlium* Wats.
13. albiflòrum *Hook.* N. Amer. 1161
The white-flowered Whortleberry.
V. *álbum* Lam. ?
14. mariànum *Wats.* North America fig. 978. 1162
The Maryland Whortleberry.
V. *marilándicum* Lodd.
15. grandiflòrum *Wats.* North America fig. 979. 1162
The great-flowered Whortleberry.
16. elongàtum *Wats.* North America fig. 980. 1162
The elongated Whortleberry.
17. minutiflòrum *Wats.* N. America fig. 981. 1162
The minute-flowered Whortleberry.
18. glàbrum *Wats.* N. Am. f. 982. 1162
The glabrous Whortleberry.
19. frondòsum *L.* N. America 1163
The frondose Whortleberry.
V. *glaúcum* Michx.
Blue Tangles, Amer.
Variety - - - 1163
2 venústum *Ait.*
V. *frondòsum var. β lanceolatum* Pursh.
20. resinòsum *Ait.* N. Am. f. 983. 1163
The resinous Whortleberry.
Andrómeda baccàta Wang.
Varieties - - - 1163
2 rubéscens *Pursh.*
3 lutéscens *Pursh.*
21. *A*rctostáphylos *L.* Black Sea fig. 984. 1163
The Bear's Grape Whortleberry.
22. (?*A.*) *p*adifòlium *Sm.* Madeira fig. 985, 986. 1164
The Bird-cherry-leaved Bear's Grape Whortleberry.
V. *Arctostáphylos* Andr.
V. *maderénse* Link.
V. *caucásicum* Hort.
V. *padifòlium caucásicum* Hort.
B. *Leaves evergreen.*
23. caracasànum *H. B. et Kunth.* South America - - - 1164
The Caraccas Whortleberry.
24. *V*ìtis idæ̀a *L.* Europe f. 987. 1164
The Mount Ida Whortleberry, *or Cowberry.*
V*ìtis idæ̀a rùbra* Cam.
The red Whortleberry.
25. (*V.*) *b*uxifòlium *Salisb.* N. America fig. 988, 989. 1165
The Box-leaved Whortleberry.
V. *brachýcerum* Michx.
26. *m*yrtifòlium *Michx.* N. Am. 1166
The Myrtle-leaved Whortleberry.
27. nítidum *Andr.* N. Am. f. 990. 1166
The glossy-*leaved* Whortleberry.
28. crassifòlium *Andr.* N. America 1166
The thick-leaved Whortleberry.
29. ovàtum *Pursh.* N. Am. f. 991. 1166
The ovate-*leaved* Whortleberry.
30. canadénse *Richards.* N. Am. 1166
The Canada Whortleberry.
31. *M*yrsinìtes *Michx.* N. America 1167
The Myrsine-like Whortleberry.
Varieties - - - 1166
2 lanceolàtus *Pursh.*
3 obtùsus *Pursh.*
32. humifùsum *Grah.* N. America 1167
The trailing Whortleberry.
App. i. *Hardy Species of* Vaccínium *not yet introduced.* - - 1167
V. Chamissònis Bongard.
V. *Myrtíllus* Cham.
V. ovalifòlium *Smith.*
V. parvifòlium *Smith.*
V. salícinum *Cham.*
V. cylindràceum *Smith.*
V. confértum *H. B. et Kunth.*
V. obtùsum *Pursh.*
App. ii. *Half-hardy Species of Vaccínium not yet introduced.* - - 1167
V. geminiflòrum *H. B. et Kunth.*
V. hírtum *Thunb.*
V. calycìnum *Smith.*
V. bracteàtum *Thunb.*
V. ciliàtum.
V. ledifòlium *Pohl.*
V. floribúndum *H. B. et Kunth.*
V. leucánthum *Cham.*
V. villòsum *Smith.*
V. Schlechtendáhlii G. Don.
V. scàbrum *Pohl.*
V. montànum *Pohl.*
V. cèreum *Forst.*
V. reticulàtum *Smith.*
V. penduliflòrum *Gaud.*
V. microphýllum *Herb. Reinwdt.*
V. dentàtum *Smith.*
V. empetrifòlium *H. B. et Kunth.*
V. pen*æöides* H. B. et Kunth.
V. acuminàtum *H. B. et Kunth.*
V. alaternöìdes *H. B. et Kunth.*
XXVII. OXYCO'CCUS *Pers.* 1078. 1168
The Cranberry.
Vaccínium sp. of L. and others.

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1. palústris *Pers.* ∾ Europe f. 992. 1168
The Marsh, *or common*, Cranberry.
O. vulgàris Pursh.
O. europæ`us Nutt.
V*accínium Oxycóccus* L.
V*accínium Oxycóccus var.* α *ovalifòlius* Michx.
V*accínia palústris* Ger. Emac.
Oxycóccum Cord.
Mossberries, *Moorberries*, *Fenberries*, *Marshworts*, *Whortleberries*, *Cornberries*, Eng.
Airelle canneberge, Fr.
Gemeine Moosebeere, Ger.

2. macrocárpus *Pursh.* ∾ North America fig. 993. 1170
The large-fruited, *or American*, Cranberry.
V*accínium macrocárpum* Ait.
V*accínium hispídulum* Wangh.
V*accínium Oxycóccus* β *oblongifòlius* Mx.
Variety ∾ - - - 1170
2 fòliis variegàtis *Hort.* ∾
V*accínium macrocárpum fol. var.* Lodd.

3. eréctus *Pursh.* ✣ N. Am. f. 994. 1171
The erect Cranberry.
V*accínium erythrocárpum* Mx.

App. I. *Genera of* Ericàceæ, *of which it appears doubtful if any hardy ligneous Species have yet been introduced.* - - 1171

I. BRYA'NTHUS *Gmel.* ∾ - - 1171
The Bryanthus.
Andrómeda sp. L.
Menzièsia Swartz and *Pursh.*
E*rìca sp.* Thunb.

1. Gmèlin*i* D. Don. ∾ Kamtschatka fig. 995. 1171
Gmelin's Bryanthus.
Menzièsia bryántha Swartz.
Andrómeda bryántha L
E*rìca bryántha* Thunb.
Bryánthus rèpens serpyllifòlia flòre ròseo Gmel.

2. Stéller*i* D. Don. ∾ North-west America fig. 996. 1172
Steller's Bryanthus.
*Andrómeda Steller*iàna Pall.
Menzièsia *empetrifórmis* Pursh, but not of others.

Cladothámnus pyrolæflòrus *Bongard.* - - 1172
Pýrola fruticòsa Eschscholtz.

App. II. *Half-hardy ligneous Species of* E*ricàceæ.* - - 1172

I. ENKIA'NTHUS *Lour.* ♣⊔ - 1172
The Enkianthus.
Meladòra Sal.

1. quinqueflòrus *Lour.* ♣⊔ China fig. 997, 998. 1172
The five-flowered Enkianthus.
E. reticulàtus Lindl.

E. biflòrus *Lour.* ♣⊔ - - - - 1173
Virèy*a* - - - - - 1173
Befàri*a* Humb. et Bonp. ♣⊔ ♣⊔ - - 1173
Bejària Mutis.
B. glaúca *Humb. et Bonp.* ♣⊔ - - - 1173
B. racemòsa *Vent. Cels.* ♣⊔ - - - 1173
B. paniculàta Michx.
Hymenánthes japónica *Blum.* - - - 1173
Gaylussácci*a b*uxifòlia *H. B. et Kunth* - - 1173
Thibaúd*ia* cordifòlia *H. B. et Kunth* - - 1173
Cavendísh*ia* nóbilis *Lindl.* - - - 1173
Agapètes *D. Don* - - - - - 1173
Ceratostèma grandiflòra *R. et P.* - - - 1173

App. III. *Of the Cultivation of the Hardy* E*ricàceæ, including the Laying out and Planting of an Ericacetum.* - - 1173

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Symplocàceæ. 1186
♣⊔ ♣⊔

Sýmplocos sínica *Ker.* ♣⊔ China 2 sp. fig. 1007.
S. cratægöìdes *Hamilt.* ♣⊔ Nepal.

Styràceæ. 1187

I. *STY'RAX L.* ❀ - - 4 sp. 1187
The Storax.
Alibocifier, Fr.
Storax, Ger.

1. officinàle *L.* ❀ Syria fig. 1008. 1187
The officinal Storax.
Lagomēlia, Modern Greek.
Sturax kalamitēs, Ancient Greek.

2. grandifòlium *Ait.* ❀ North America fig. 1009. 1188
The large-leaved Storax.
S. *officinàlis* Walt.
S. *grandiflòrum* Michx.

3. lævigàtum *Ait.* ❀ South Carolina fig. 1010. 1188
The smooth-*leaved* Storax.
S. *octándrum* L'Hérit.
S. *glàbrum* Cav.
S. *læ`ve* Walt.
S. *americànum* Lam.

4. pulverUléntum *Michx.* ❀ Virginia and Carolina - - fig. 1011. 1189
The powdery Storax.
S. *lævigàtum* Curt.

*Hales*iàceæ. ♠ ❀ 1189

I. HALE`S*IA* Ellis. ♠ ❀ - 3 sp. 1189
The Halesia, *or Snowdrop Tree.*
Halésie, Fr. and Ger.

1. tetráptera *L.* ♠ South Carolina pl. 194, 195. fig. 1012. 1190
The four-winged-*fruited* Halesia, *or common Snowdrop Tree.*
The Snowdrop Tree, SilverBell Tree, Amer.

2. (t.) parviflòra *Michx.* ♠ ❀ Florida fig. 1013. 1190
The small-flowered Halesia.

3. díptera *L.* ♠ ❀ Georgia and Carolina fig. 1014. 1191
The two-winged-*fruited* Halesia.

Sapotàceæ. 1191
☨ ♠ ♠⊔ ❀ ♣

I. *ARGA`NIA* Rœm. et Schultes. ☨ ❀ 1191
The Argania.
Sideróxylon spinòsum L.
L'Argan, Fr.
Eisenholz, Ger.

1. Sideróxylon *Rœm. et Schultes.* ☨ ❀ Morocco - - fig. 1015. 1192
The Iron-wood Argania.
Sideróxylon spinòsum L. Sp. &c.
Elæodéndron A'rgan *Retz.*
R*hámnus pentaphýllus* Jacq.
R*hámnus sículus* L. Syst.

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II. *B*UME'LIA *Swartz.* † †☐ ✿ ✱ 1192

THE BUMELIA.
A'chras sp. Lin.
Sideróxylon sp. Lam. and others.
Chrysophýllum sp. Aubl. and others.
Hochstaum, Ger.

1. *l*yciöìdes *Gærtn.* ✱ ✿ Carolina fig. 1016. 1193
The Box-thorn-like Bumelia.
Sideróxylon lyciöìdes Du Ham.
S. læ've Walt.
Lyciöìdes sp. Lin. Hort Cliff.

2. reclinàta *Vent.* ✿ Georgia - - 1193
The reclinate-*branched* Bumelia.
Sideróxylon reclinàtum Michx.

3. tènax *Willd.* ‡ Carolina f. 1017. 1193
The tough-*branched* Bumelia.
B. *chrysophylloìdes* Pursh.
Sideróxylon tènax L.
S. sericeum Walt.
S. chrysophyllöìdes Michx.
Chrysophýllum carolinénse Jacq.
C. glàbrum Juss.

4. lanuginòsa *Pursh.* ✿ Carolina and Georgia - - - - 1194
The woolly-*leaved* Bumelia.
Sideróxylon lanuginòsum Michx.
S. tènax Walt.

5. oblongifòlia *Nutt.* ‡ N. America 1194
The oblong-leaved Bumelia.

B. salicifòlia *Swz.* † ☐
Sideróxylon salicifòlium Lam.
A'chras salicifòlia L.

Ebenàceæ. 1194
‡ † †⊔ ✱☐

I. *D*IOSPY'ROS *L.* ‡ † †⊔ ✱☐ 1194

THE DATE PLUM.
E'benus Comm.
Guaiacàna *Tourn.*
Plaqueminier, Fr.
Dattelpflaume, Ger.

1. Lòtus *L.* ‡ Caucasus pl. 196, 197. 1194
The *European* Lotos, *or common* Date Plum.
Pseudolòtus Matth.
Guaiacàna *patavìna* Tourn.
Italian Lignum Vitæ, Wood of Life, Pockwood, Bastard Menynwood, Gerard.
Date of Trebisonde.
Plaqueminier, Faux Lotier, Fr
Italianische Dattelpflaume, Ger.

2. virginiàna *L.* ‡ North America pl. 198, 199. 1195
The Virginian Date Plum, *or Persimon.*
Guaiacàna *Catesb.*
Variety - - 1196
2 dúlcis *Prince's Cat.*
Foreman's sweet *Persimon.*

3. (v.) pubéscens *Pursh.* ‡ N. Am. 1196
The downy-*leaved* Virginian Date Plum.
D. *virginiàna var.* Michx.

App. I. *Other Species of* Ebenàceæ. 1197
*D*iospỳrus angustifòlia *Lodd. Cat.*
D. fértilis *Lodd. Cat.*
D. lùcida *Lodd. Cat.* † North America.
D. Mabòla Roxb. ✱ ☐ Philip Islands.

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Embryópteris *Kàki* L. † ⊔ Japan.
D. *chinénsis* Blume.
Konis, Kaki, Kæmpf.

Oleàceæ. - 1197
‡ † †⊔ †⊔ ✿✱✱⊔

Sect. I. OLE'INÆ. 1197, 1198
‡ † †⊔ †⊔ ✿ ✱ ✱⊔

I. *L*IGU'STRUM *Tourn.* ‡ † ✿ ✱ 1198

THE PRIVET.
Troëne, Fr.
Rainweide, Ger.

1. vulgàre *Trag.* ✿ ✱ ‡ † Britain fig. 1019, 1020. 1198
The common Privet.
L. *germánicum* Bauh.
Prim, Prim-print.
Puine blanc, Fr.
Gemeine Rainweide, Ger.
Ligustro Olivella, Ital.
Varieties † ✿ ✱ - - 1199
2 leucocárpum ✿
The white-berried Privet.
3 xanthocárpum ✿
The yellow-berried Privet.
4 chlorocárpum ✿
The green-berried Privet.
5 sempervìrens † ✱ fig. 1018.
The *Italian, or* evergreen, Privet.
L. *itálicum* Mill.
6 variegàtum ✿
The variegated-*leaved* Privet.
7 angustifòlium ✿
The narrow-leaved Privet.

2. spicàtum *Hamilt.* ✿ ✱ ‡ † Nepal fig. 1022. 1201
The spiked-*flowered* Privet.
L. *nepalénse* Wall.
L. *lanceolàtum* Herb. Lamb.
L. *nepalénse var. glàbrum* Hook.'

3. lùcidum *Ait.* fig. 1024, 1025. 1201
The shining-*leaved* Privet, *or Wax Tree.*
Variety - - - 1201
2 floribúndum *Donald's Cat.*

App. i. *Species of* Ligústrum *not yet introduced.* - - 1202
L. sinénse *Lour.* ✿ China.
L. japónicum *Thunb.* ✿ Japan.
L. *latifòlium* Vitm.
L. pubéscens *Wall.* ✿ Burmese Empire.
L. bracteolàtum *D. Don.* ✿ Nepal.
L. *japónicum* Hamilt.
Phillýrea bracteolàta Herb. Lamb.

II. *P*HILLY'REA *Tourn.* 1198. 1203

THE PHILLYREA.
Filaria, Fr.
Steinlinde, Ger.

1. angustifòlia *L.* ✱ Italy and Spain fig. 1025. 1203
The narrow-leaved Phillyrea.
P. *oblìqua* Tenore Syll.
P. *mèdia* Tenore Fl. Neap.
Varieties ✱ - - - 1204
2 lanceolàta *Ait.* ✱
3 rosmarinifòlia *Ait.* ✱ fig. 1026.
4 brachiàta *Ait.* ✱

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2. mèdia *L.* ✿ S. Europe fig. 1027. 1204
The intermediate, *or lance-leaved*, Phillyrea.
P. *latifòlia var.* ε *mèdia* Lapeyr.
P. *ligustrifòlia* Mill.
P. *læ'vis* Tenore Syll.
P. *latifòlia var.* A *ligustrifòlia* Poll.
Varieties ✿ - - - 1204
2 virgàta *Ait.* ✿
3 buxifòlia *Ait.* ✿

3. (m.) ligustrifòlia *Ait.* ✿ S. Europe 1204
The Privet-leaved Phillyrea.

4. (m.) péndula *Ait.* ✿ S. of Europe 1204
The drooping-*branched* Phillyrea.
P. *mèdia* γ Willd.

5. (m.) oleæfòlia *Ait.* ✿ S. of Europe 1204
The Olive-leaved Phillyrea.
P. *mèdia* δ Ait.
P. *racemòsa* Link.

6. latifòlia *L.* ✿ S. Eur. fig. 1028. 1205
The broad-leaved Phillyrea.
P. *latifòlia* β *serràta* Poll.
P. *latifòlia* β Ten. Fl. Neap.
P. *spinòsa* Ten. Syll.
P. *latifòlia* β *spinòsa* Seg.

7. (l.) læ'vis *Ait.* ✿ South of Europe and North of Africa - - 1205
The smooth Phillyrea.
P. *latifòlia var.* A. *Willd. Sp.*
P. *latifòlia* Mill. Dict.

8. (l.) oblìqua *Ait.* ✿ South Europe 1205
The oblique-*leaved* Phillyrea.
P. *latifòlia* γ Willd. Sp.
P. *foliàcea* Link.
Phillýrea ii. *Clus.*

9. (l.) spinòsa *Mill.* ✿ S. Europe 1205
The spiny, *or Holly-leaved*, Phillyrea.
P. *ilicifòlia* Willd. Enum.
P. *latifòlia* β *spinòsa* Willd. Sp.
P. *latifòlia longifòlia* Link.
Phillýrea i. Clus.

III. CHIONA'NTHUS *L.* ⚘ ✿ 1098. 1205
THE SNOW-FLOWER, *or Fringe Tree.*
Chionanthe, Fr.
Schneeblume, Ger.

1. virgínica *L.* ⚘ North America fig. 1029, 1030. 1206
The Virginian Snow-Flower.
Snowdrop Tree, Amer.
Arbe de Neige, Fr.
Schneeblume, Ger.
Varieties ✿ - - 1206
2 latifòlia *Catesb.* ✿
C. *v. montàna* Pursh.
3 angustifòlia *Ait.* ✿
C. trífida Mœnch.
4 marítima *Pursh.* ✿
C. marítima Lodd.

App. I. *Half-hardy ligneous Species of Oleàceæ belonging to the Section Olèinæ.* 1207
⚘⊔ ⚘⊔ ✿⊔

O'lea europæ'a L. ⚘ ⊔
O. *Oleáster* Hoffmansegg.
O. *europæ'a commùnis* Ait.
O. *sylvéstris* Mill.
O. e. satìva ⚘ ⊔ fig. 1031.
O. *satìva* Hoffmansegg.
O. *europæ'a* Michx.
Subvarieties.
O. e. s. longifòlia *Ait.* fig. 1032.
latifòlia.
hispánica Mill.
oblónga.
Picholine, Fr.
Pignola, Ital.
ferrugínea *Ait.* fig. 1033.
oblìqua *Ait.*
buxifòlia *Ait.*
Subvarieties most esteemed in France.
1. Olivier pleureur.
O'*lea craniomórpha* N. Du Ham.
2. Olivier à Fruit arrondi.
O'*lea sphæ'rica* N. Du Ham.
3. Olivier de Lucques.
O'*lea mìnor lucénsis* N. Du Ham.
4. Olivier à petit Fruit rond, *N. Du Ham.*
5. Olivier de Salon, *N. Du Ham.*
6. Olivier amygdalin.
O'*lea amygdálina.*
7. Olive Picholine.
O'*lea oblónga* N. Du Ham.
Pignola, Ital.
O. excélsa *Ait.* ⚘ ⊔ - - - 1208
O. americàna *L.* ✿ ⊔ - - fig. 1034. 1208
O. fràgrans *Thunb.* ✿ ⊔ - - fig. 1035. 1208
O. capénsis *L.* ✿ ⊔ - - - - 1208
O. *buxifòlia* Mill.

Sect. II. *SYRI'NGEÆ.* ✿ - 1198. 1208

IV. *SYRI'NGA* L. ✿ - 1198. 1208
THE LILAC.
Lìlac *Tourn.*
Lilas, Fr.
Flieder, Ger.

1. vulgàris *L.* ✿ Persia fig. 1036. 1209
The common Lilac.
Lìlac *vulgàris* Gærtn.
Pipe Privet, Pipe Tree.
Lilas commun, Fr.
Gemeiner Flieder, Ger.
Varieties ✿ - - 1209
1 cærùlea *Clus.* ✿
The common blue Lilac.
2 violàcea *Curt.* ✿
The common purple Lilac.
Scotch Lilac.
3 álba ✿
The common white Lilac.
4 álba màjor *Lodd. Cat.* ✿
5 álba plèna ✿
S. *plèna* Lodd. Cat.
6 rùbra *Lodd. Cat.* ✿
7 rùbra màjor *Lodd.* ✿
Other Varieties.

2. Josikæ'a Jacq. ✿ Transylvania fig. 1037, 1038. 1201
Josika's Lilac.

3. pérsica *L.* ✿ Persia fig. 1039. 1211
The Persian Lilac.
Lìlac *mìnor* Mœnch.
Lìlac *pérsica* Lam.
Lilas de Perse, Fr.
Varieties ✿ - - - 1211
2 álba *Lodd. Cat.* ✿
The white Persian Lilac.
3 laciniàta *Lodd. Cat.* ✿ fig. 1040.
The cut-*leaved* Persian Lilac.
S. *capitàta* Gmel.
Lilas à Feuilles de Persil, Fr.
4 salvifòlia *Lodd. Cat.* ✿

4. rothomagénsis *Renault.* ✿ Rouen fig. 1041. 1212
The Rouen Lilac.
S. dùbia Pers.
Lilàceum *rothomagénse* Renault.
S. *mèdia* Dum. Cours.
Lilas Varin, N. Du Ham.
S. *chinénsis* Willd.
S. *sibírica* Hort.
The Siberian Lilac, Hort.

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Varieties ✿ - - - 1212
2 Lilas Royal, *Bon. Jard.* ✿
3 saugeàna *Hort.* ✿
Lilas saugé, Fr.
? S. *coccínea* Lodd. Cat.
S. *chinénsis rùbra* Lodd. Cat.

App. i. *Species of* Syrínga *not yet introduced.* - - 1212
S. Emòdi *Wall.* fig. 1042.
S. villòsa *Vahl.*
? *Ligústrum sinénse* Lour.

V. FONTANE'*SIA* Labill. ✿ †
THE FONTANESIA. 1198. 1213

1. *p*hillyreöìdes *Labill.* ✿ ? Syria fig. 1034. 1213
The Phillyrea-like Fontanesia.

Fors*ý*th*ia* suspénsa *Vahl.* - - - - 1213
Syrínga *suspénsa* Thunb.
Lilac *perpénse* Lam.

Sect. III. *F*RAXINIE'Æ. † ✿ 1198. 1213

VI. *FRA'*XINUS *Tourn.* ‡ ✿ 1198. 1213
THE ASH.
Frêne, Fr.
Esche, Ger.

A. *Leaflets broad, smooth or shining on the upper Surface. Natives of Europe.*

1. excélsior *L.* ‡ Europe pl. 200, 201, 202. fig. 1044. 1215
The taller, *or common*, Ash.
F. *apétala* Lam.
F. *rostràta* Guss.
F. O'*rnus* Scop.
F. *eròsa* Pers.
F. *críspa* Bosc.
Le Frêne, Fr.
Aesche, *Esche*, Ger. and Dutch.
Ask, Dan. and Swed.
Frassino, Ital.
Fresno, Span.
Freixo, Port.
Jas, *Jasen*, *Jassen*, Russ.
Æse, Sax.
Varieties ‡ - - - 1214
2 péndula *Ait.* pl. 203.
The pendulous, *or weeping*, Ash.
péndula var. ‡
The Cowpen Ash.
3 Kincaírniæ ‡
The Kincairney Ash.
4 aúrea *Willd.* ‡
The golden-*barked* Ash.
F. *aúrea* Pers.
5 aúrea péndula ‡
6 críspa ‡
F. *críspa* Bosc.
F. *atrovìrens* Desf.
7 jaspídea *Willd.* ‡
The *striped-barked* Ash.
8 purpuráscens *Descemet.* ‡
The purple-*barked* Ash.
9 argéntea *Desf.* ‡
The silver-*striped-leaved* Ash.
10 lùtea ‡
The yellow-*edge-leafleted* Ash.
11 eròsa *Pers.* ‡
12 horizontàlis *Desf.* ‡
The horizontal-*branched* Ash.
13 verrucòsa *Desf.* ‡
The warted-*barked* Ash.

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14 verrucòsa péndula ‡
15 nàna *Lodd. Cat.* ‡
The dwarf Ash.
F. *e. hùmilis* Hort.
16 fungòsa *Lodd. Cat.* ‡
The fungous-*barked* Ash.
17 verticillàta *Lodd. Cat.* ‡
The whorled-*leaved* Ash.
18 villòsa nòva *Descemet.* ‡
Other Varieties.

2. (e.) heterophýlla *Vahl.* ‡ Europe pl. 204. 1228
The various-leaved Ash.
F. *simplicifòlia* Willd. and Hort.
F. *monophýlla* Desf.
F. *e. β diversifòlia* Ait.
F. *e. var.* ε Lam.
F. *e. β heterophýlla* Dec.
F. *integrifòlia* and *diversifòlia* Hort.
Variety - - - 1229
2 variegàta fig. 1051.

3. (e.) angustifòlia *Bauh.* ‡ Eur. 1229
The narrow-leaved Ash.

Other Sorts of the common European Ash 1229

B. *Leaflets small, smooth or shining above. Natives of the South of Europe, the North of Africa, or the West of Asia.*

4. (e.) parvifòlia *Willd.* ‡ South of Europe, North of Africa, West of Asia pl. 205. fig. 1052. 1229
The small-leaved Ash.

5. (e. p.) argéntea *Lois.* ‡ South of Europe, North of Africa, and West of Asia - - - 1230
The silvery-*leaved* Ash.

6. (e. p.) oxycárpa *Willd.* ‡ South of Europe, North of Africa, and West of Asia - - fig. 1053. 1230
The sharp-fruited Ash.
F. *oxyphýlla* Bieb.
F. O'*rnus* Pall.

7. (e.) pállida *Bosc.* ‡ South of Europe, N. of Africa, and W. of Asia 1230
The pale-*barked* Ash.

8. *l*entiscifòlia *Desf.* ‡ South of Europe, North of Africa, and West of Asia pl. 206. fig. 1054. 1231
The Lentiscus-leaved Ash.
F. *tamariscifòlia* Vahl.
F. *parvifòlia* Lam.
F. *aleppénsis* Pluk.
Variety - - - 1231
2 péndula

C. *Leaves and Leaflets large, glaucous and downy beneath. Natives exclusively of North America.*

9. americàna *Willd.* ‡ North America pl. 207. fig. 1055. 1232
The American Ash.
F. *acuminàta* Lam.
F. *discolor* Muhl.
White Ash, *Green Ash*, Amer.
Variety ‡ - - - 1232
2 latifòlia ‡

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10. (a.) pubéscens *Walt.* 🌳 N. America fig. 1056. 1232, 1233
The downy Ash.
F. *nìgra* Du Roi.
F. *tomentòsa* Michx.
Red Ash, Black Ash, Amer.
Varieties 🌳 - - - 1233
2 longifòlia *Willd.* 🌳
F. *pennsylvánica* Marsh.
3 latifòlia *Willd.* 🌳
4 subpubéscens *Pers.* 🌳
? F. *subvillòsa* Bosc.
11. (a.) sambucifòlia *Vahl.* 🌳 N. America fig. 1057, 1058. 1234
The Elder-leaved Ash.
F. *nìgra* Mœnch.
F. *críspa* Hort.
Black Ash, Water Ash, Amer.
Variety 🌳 - - - 1234
2 críspa *Lodd. Cat.* 🌳
12. (a.) quadrangulàta *Michx.* 🌳 North America - fig. 1059, 1060. 1235
The quadrangular-*branched* Ash.
F. *tetragòna* Cels.
F. *quadrangulàris* Lodd. Cat.
Blue Ash, Amer.
Variety 🌳 - - - 1235
2 nervòsa *Lodd. Catt.* 🌳
13. (a.) juglandifòlia *Lam.* 🌳 N. America pl. 208. f. 1061, 1062. 1232. 1236
The Walnut-leaved Ash.
F. *víridis* Michx.
F. *cóncolor* Mühl.
The green Ash, Amer.
Western black Ash, Pursh.
Variety 🌳 - - - 1236
2 subintegérrima *Vahl.* 🌳
F. *juglandifòlia β subserràta* Willd.
F. *caroliniàna* Wangenh.
F. *Nòvæ-A'ngliæ* and F. *caroliniàna* Mill. Dict.
14. (a.) caroliniàna *Lam.* 🌳 N. America 1232. 1237
The Carolina Ash.
F. *excélsior* Walt.
F. *serratifòlia* Michx.
F. *lanceolàta* Borkh.
15. (a.) epíptera *Vahl.* 🌳 N. America pl. 209. fig. 1232. 1237.
The wing-topped-*seeded, or two-coloured*, Ash.
F. *canadénsis* Gærtn.
F. *láncea* Bosc.
16. (a.) platycárpa *Vahl.* 🌳 N. America fig. 1063, 1064. 1238
The broad-fruited Ash.
F. *caroliniàna* Catesb.
The Carolina Ash, Amer.
17. (a.) expánsa *Willd.* 🌳 N. Am. 1238
The expanded Ash.
F. *aroliniàna* Hort. Worlitz.
18. (a.) míxta *Bosc.* 🌳 N. America 1238
The mixed Ash.
19. (a.) pulverulénta *Bosc.* 🌳 N. Am. 1238
The powdery Ash.
20. (a.) rubicúnda *Bosc.* 🌳 N. Amer. 1239
The reddish-*veined* Ash.
21. (a.) longifòlia *Bosc.* 🌳 N. Amer. 1239
The long-leaved Ash.
22. (a.) víridis *Bosc.* 🌳 N. Amer. 1239
The green Ash.
23. (a.) cinèrea *Bosc.* N. America 1239
The grey Ash.
24. (a.) álba *Bosc.* 🌳 N. America 1239
The white Ash.
? F. *caroliniàna álba*,
? F. *americàna álba var.*,
? F. *am. álba affinis* Hort. Soc. Gard.
25. (a.) Richárdi Bosc. 🌳 N. Am. 1239
Richard's Ash.
26. (a.) ovàta *Bosc.* 🌳 N. America 1239
The ovate-*leaved* Ash.
27. (a.) nìgra *Bosc.* 🌳 N. America 1239
The black Ash.
28. (a.) ellíptica *Bosc.* 🌳 N. Amer. 1240
The elliptic-*leaved* Ash.
29. (a.) fúsca *Bosc.* 🌳 N. America 1240
The brown-*branched* Ash.
30. (a.) rùfa *Bosc.* 🌳 North America 1240
The rufous-*haired* Ash.
31. (a.) pannòsa *Vent. et Bosc.* 🌳 North America - - pl. 210. 1240
The cloth-like-*leaved* Ash.
32. Bóscii G. Don. 🌳 N. America 1240
Bosc's Ash.
F. *nàna* Bosc, not of Willd.
33. (a.) polemoniifòlia *Poir.* 🌿 North America - - - - 1240
The Greek-Valerian-leaved Ash.
F. *nàna* Desf.
F. *nàna (appendiculàta)* Pers.
34. (a.) tríptera *Nutt.* 🌳 N. Amer. 1240
The three-winged-*fruited* Ash.
35. chinénsis *Roxb.* 🌳 N. America 1240
The China Ash.
36. Schiedeàna Schlecht. 🌳 N. Amer. 1241
Schiede's Ash.
Fagàra *dùbia* Rœm. et Schult.
VII. O'RNUS *Pers.* 🌳 1198. 1241
THE FLOWERING ASH.
Fráxinus sp. of the older authors.
Le Frêne à Fleurs, Fr.
Die blühende Esche, Ger.
Oren, Hebrew.
Oreinē Mēlia, Greek.
1. europæ'a *Pers.* 🌳 South of Europe pl. 211, 212. 1241
The European Flowering, *or Manna*, Ash.
F. *O'rnus* L.
F. *O'rnus* and F. *paniculàta* Mill. Dict.
F. *florífera* Scop.
F *botryöìdes* Mor.
F. *vulgàtior* Segn.
Varieties - - - 1241
rotundifòlia.
O. *rotundifòlia*.
americàna.
O. *americàna*.
globífera *Lodd.*
2. (e.) rotundifòlia *Pers.* 🌳 Calabria fig. 1069. 1244
The round-leafleted Flowering Ash.
Fráxinus rotundifòlia Ait.
F. *mannífera* Hort.

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3. (e.) americàna *Pursh.* N. America fig. 1070. 1244
The American Flowering Ash.
? F. *americàna* L.
F. O'*rnus americàna* Lodd.
4. floribúnda *G. Don.* Nepal fig. 1072. 1245
The abundant-flowered Flowering Ash.
Fráxinus floribúnda D. Don.
5. striàta *Swt.* - - - - 1246
The striped-*barked* Flowering Ash.
Fráxinus striàta Bosc.
App. i. *Hardy Species of* O'*rnus not yet introduced.* - - 1246
O. xanthoxylöìdes *G. Don.*
Fráxinus xanthoxylöìdes Wall.
O. Moorcroftiàna G. Don.
Fráxinus Moorcroftiàna Wall.
O. urophýlla *G. Don.*
Fráxinus urophýlla Wall.
App. ii. *Alphabetical List of the Sorts of Fráxinus and* O'*rnus in the Arboretum of Messrs. Loddiges, and in the Horticultural Society's Garden, with their Names referred to the different Species to which they are presumed to belong.* - - - 1246
App. iii. *List of the Sorts of* Fráxinus *and* O'*rnus in the Arboretum of Messrs. Loddiges, and in the Chiswick Garden, arranged alphabetically under the different Species to which they are presumed to belong.* - 1247

Jasminàceæ. 1248
I. *JASMI'NUM Forskoel.* - - 1248
THE JASMINE.
Mongòrium *Lam.*
Jessamine.
Jasmin, Fr. and Ger.
Schasmin, Ger.
Gelsomine, Ital.
Jazmin, Span.
1. frùticans *L.* South of Europe and the Levant - - fig. 1073. 1248
The sprig-producing, *or shrubby*, Jasmine.
J. *heterophýllum* Mœnch.
Variety - - - 1248
fl. sémi-plèno.
2. hùmile *L.* Madeira fig. 1074. 1249
The humble, *or Italian yellow*, Jasmine.
3. heterophýllum *Roxb.* Nepal fig. 1075. 1249
The various-leaved Jasmine.
J. *arbòreum* Hamilt. MSS.
Goojee, Javana, in Nepal.
4. revolùtum *Ker.* Hindostan and Nepal - - - fig. 1076. 1249
The revolute-*flowered* Jasmine.
J. *chrysánthemum* Roxb.
The Nepal yellow Jasmine.
5. (r.) pubígerum *D. Don.* Nepal fig. 1077. 1250
The downy *Nepal* Jasmine.
J. *Wallichi*ànum *Lindl.*
Climali-swa, Nepalese.
6. officinàle *L.* Asia fig. 1078. 1250
The officinal, *or common*, Jasmine.
Varieties - - 1250
2 fòliis argénteis *Lodd. Catt.*
3 fòliis aúreis *Lodd. Catt.*
4 flóribus plènis *Hort.*
App. i. *Hardy Species of* Jasmìnum *not yet introduced.* - - 1253
J. aúreum *D. Don.* Nepal.
J. nervòsum *Lour.* Cochin-China
App. ii. *Half-hardy Species of* Jasmìnum. 1254
J. odoratíssimum *L.* Madeira.
The Jasmine of Goa.
J. glaúcum *Vahl.* Cape of Good Hope.
J. azóricum *Vahl.* Azores and Madeira.

Apocynàceæ. 1254
I. *VI'NCA L.* - - - 1254
THE PERIWINKLE.
Pervínca Tourn.
La Pervenche, Fr.
Sunngrün, Ger.
1. màjor *L.* Britain f. 1082, 1083. 1254
The greater Periwinkle.
Vinca mèdia Delile.
Pervínca màjor Scop.
Variety - - - 1254
2 variegàta *Hort.*
2. mìnor *L.* Europe fig. 1084. 1256
The less Periwinkle.
Pervínca mìnor Scop.
Pervínca vulgàris Park.
Clématis daphnöìdes Dodon.
Varieties - - - 1256
2 fòliis argénteis *Lodd. Cat.*
3 fòliis aúreis *Lodd. Cat.*
4 flòre álbo *Lodd. Cat.*
5 flòre plèno *Lodd. Cat.*
6 flòre puníceo *Lodd. Cat.*
App. I. *Half-hardy ligneous Plants belonging to the Order Apocynàceæ.* - 1256
Gelsèmium nítidum *Michx.* N. America fig. 1085.
Bignònia sempervìrens L.
Nèrium Oleánder *L.* S. of France & Spain f. 1086. 125

*Asclepiad*àceæ. 1257
I. PERI'PLOCA *L.* - - 1257
THE PERIPLOCA.
Periploca, Fr.
Schlinge, Ger,
1. græ`ca *L.* South of France and of Bithynia - fig. 1087, 1088. 1257
The Greek Periploca.
P. maculàta Mœnch.
2. angustifòlia *Labill.* Tunis f. 1089. 1258
The narrow-leaved Periploca.
P. rígida Vir.
P. lævigàta Vahl!

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P. lævigàta *Ait.* Canary Islands - 1258
P. punicæfòlia Cav.

Half-hardy Species of Períploca. - 1258

Bignoniàceæ. 1258

I. BIGNO'NIA Tourn. - 1258
The Trumpet Flower.
Bignònia sp. L. and others.
Bignone, Fr.
Trompetenblume, Ger.

1. capreolàta *L.* N. Am. f. 1090. 1259
The tendriled Bignonia.

II. *TE'COMA* Juss. - - 1258, 1259
The Tecoma.
Bignònia sp. L. and others.

1. radìcans *Juss.* Carolina f. 1091. 1259
The rooting-*branched* Tecoma.
Bignònia radìcans L.
Bignònia radìcans màjor Hort.
Gelsèmium *Clématis* Barrel.
Bignònia fraxinifòlia Catesb.
Jasmin de Virginie, Fr.
Wurzeln Bignonia, Ger.
Esschenblättrige Bignonia, Dutch.
Variety - - - 1259
2 màjor *Hort.*

2. grandiflòra *Swt.* China and Japan fig. 1092. 1260
The great-flowered Tecoma.
Bignònia grandiflòra Thunb.
Bignònia chinénsis Lam.
Rjotsjo Kæmpf.
Incarvíllea grandiflòra Spreng.
Tung-von-fa, Chinese.

App. i. *Half-hardy Species of Bignònia and* Técoma. - - 1261
Bignònia crucígera *Plum.* Virginia.
Técoma austràlis *R. Br.* New Holland. fig. 1093.
Bignònia Pandòræ Vent.
T. capénsis *Lindl.* Cape of Good Hope. fig. 1094.
Bignònia capénsis Thunb.

III. *CATA'LPA* Juss. - 1258. 1261
The Catalpa.
Bignònia sp. of L. and others.
Bignone Catalpa, Fr.
Gemeine Trompetenblume, Ger.

1. *syringæ*fòlia *Sims.* North America pl. 213, 214. 1261
The Lilac-*like* leaved Catalpa.
Bignònia Catálpa *Lin.*
Catálpa *bignonioìdes Walt.*
C. *cordifòlia* Nut.
Bois Shavanon, Catalpa de l'Amérique, Fr.
Trompeten-baum, Ger.
Catalpa-boom, Dutch.

App. I. *Of the half-hardy ligneous Plants of the Order Bignoniàceæ.* - 1263
Eccremocárpus longiflòrus *Humb.* Peru. fig. 1095.
E. víridis *R. et P.* Peru.
Calámpelis scàbra *D. Don.* figs. 1096, 1097.
Eccremocárpus scaber R. et P.

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Cobæàceæ. 1264
Cobæ'a scándens *Cav.* fig. 1098.

Convolvulàceæ. 1364
Convólvulus Dorýcnium *L.* Levant. fig. 1100.
C. Cneòrum *L.* Spain, &c. fig. 1099.
C. scopàrius *L.* Canaries.
C. flóridus *L.* Canaries.

Boraginàceæ. 1265
Lithospérmum fruticòsum *L.* S. of Europe.
L. fruticòsum màjus *Lehm.* Naples. fig. 1101.
L. *rosmarinifòlium* Tenore.
L. prostràtum *Lois.* France.
*E'*chium giganteum *L.* Canaries.
E. cándicans *L.* Madeira. fig. 1102.
Heliotròpium peruviànum *L.* Peru.
H. p. hýbridum Hybrid.
H. corymbòsum *R. et P.* Peru.

Cordiàceæ. 1265
Ehrètia serràta *Roxb.* E. Indies and China. fig. 1103.

Solanàceæ. 1266

I. SOLA'NUM *Pliny.* - - - - 1266
The Nightshade.
Melongèna *Tourn.*
Pseùdo-Cápsicum Mœnch.
Nyctèrium Vent.
Aquártia Jacq.
Morelle, Fr.
Nachtschatten, Ger.

1. Dulcamàra *L.* Britain f. 1104. 1266
The Bitter-sweet, *or woody*, Nightshade.
S. *scándens* Neck.
Dulcamàra flexuòsa Mœnch.
S. *scándens seu Dulcamàra* Tourn.
Amàra dúlcis Gerard.
Dúlcis Amàra Trag.
Glycýpicros seu Dulcamàra Bauh.
La Morelle grimpante Renault.
Varieties - - - 1267
1 violàcea *Hort.*
2 álba *L.*
3 cárnea *Cels.*
4 plèna *Tourn.*
5 variegàta *Munt.*
6 hirsùta *Don's Mill.*
7 rupéstris *Schmidt.*

2. suffruticòsum *Schousb.* Barbary 1267
The suffruticose Nightshade.

3. críspum *R. & S.* Chiloe fig. 1105. 1267.
The curled-*leaved* Solanum.

4. bonariénse *L.* Buenos Ayres fig. 1106. 1268
The Buenos Ayres Nightshade.

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App. i. *Half-hardy ligneous or fruticose Species of* Solànum. - 1268

Solànum Balbísii Dunal. ✹ ⊔ S. America.
S. betàceum *Cav.* ✹ □ S. America.
S. angulàtum *R. et S.* ✹ □ Lima.
S. marginàtum *W.* ✹ ⊔ Africa.
S. Pseùdo-Cápsicum *L.* ✹ ⊔ Madeira.
Cápsicum Amòmum Plínii Gerard.
S. sodòmeum *L.* ✹ ⊔ Africa.
S. *ligústrinum Lodd.* ✹ ⊔ Chili. fig. 1107.

II. *LY'CIUM L.* ✿ ⊥ ⋇ 1266. 1269
THE BOX THORN.
Jasminöìdes Niss.
Matrimony Vine, Amer.
Lycien, Fr.
Bocksdorn, Ger.

1. europæ'um *L.* ⊥ South of Europe fig. 1108. 1269.
The European Box Thorn.
L. *salicifòlium* Mill.
Jasminöìdes aculeàtum Michx.
Varieties ⊥ - - 1270
Fruit yellow ⊥
Fruit roundish ⊥

2. (e.) bárbarum *L.* ⊥ S. of Europe, &c.
The Barbary Box Thorn.
L. *halimifòlium* Mill.
L. *bárbarum α vulgàre* Ait.
The Duke of Argyll's Tea Tree.

3. (e.) chinénse *Mill.* ⋇ ⊥ China fig. 1110, 1111. 1271
The Chinese Box Thorn.
L. *bárbarum β chinénse* Ait.
L. *bárbarum* Lour.
L. *ovàtum* N. Du Ham.

4. (e.) Trew*iànum* G. Don. ⊥ China 1271
Trew's Box Thorn.
L. *bárbarum* Lam.
L. *chinénse* N. Du Ham.

5. (e.) ruthénicum *Murr.* ⊥ Siberia fig. 1112. 1271
The Russian Box Thorn.
L. *tatáricum* Pall.
Lycien de la Russie, Fr.
Variety ⊥ - - 1272
2 cáspicum *Pall.*

6. (e.) lanceolàtum *Poir.* ⊥ S. Europe 1272
The lanceolate-*leaved* Box Thorn.
L. *europæ'um β* Dec.

7. (e.) turbinàtum *Du Ham.* ⊥ China fig. 1115. 1272
The turbinate-*fruited* Box Thorn.
L. *halimifòlium* Mill.
L. *bárbarum β* Dec.

8. (?e.) tetrándrum *Thunb.* ⊥ Cape of Good Hope - - - 1272
The tetrandrous-*flowered* Box Thorn.

9. (?e.) Sháw*i* Rœm. ⊥ Barbary - 1273
Shaw's Box Thorn.
L. *europæ'um* Mill.

10. àfrum *L.* ✿ Spain f. 1114, 1115. 1273
The African Box Thorn.

III. CRABO'WSK*IA* Schlecht. ⊥ ⊔ 1266. 1273
THE CRABOWSKIA.
L*ýcium sp.* L.
Ehrètia sp. L'Hérit.

1. boerhaav*iæfòlia* Schlecht. ⊥ ⊔ South of Brazil - fig. 1116. 1274
The Boerhaavia-leaved Crabowskia.
L*ýcium boerhaav*iæfòlium *L.*
*Ehrè*tia *halimifòlia* L'Hérit.
L*ýcium heterophýllum* Murr.
Jasminöìdes spinòsum Du Ham.
Lycium paniculé, Fr.

App. I. *Half-hardy ligneous Plants belonging to the Order Solanàceæ.* - 1274

Nicot*iàna* glaúca *Grah.* ✲ ⊔ Buenos Ayres. fig. 1118.
Brugmáns*ia* sanguínea *R. et P.* † □ fig. 1117.
B. bícolor Pers.
B. suavèolens *Willd.* † □ Peru. fig. 1120.
Datùra *arbòrea* Hort.
Solándr*a* grandiflòra *L.* ⊥ □ Jamaica.
Céstrum noctúrnum *L.* ✹ □ E. Indies. fig. 1119.
C. *Párqui* L. ✹ □ Chili. fig. 1122.
Vést*ia l*yciöìdes *Willd.* ✲ ⊔ Chili. fig. 1121.
Cántua *ligustrifòlia* Juss.

Scrophulariàceæ. 1276

✿ ✹□ ✹⊔ ⌂_⊔ §⊔

I. BU'DDL*EA* L. ✿ □ ✹⊔ 1276
THE BUDDLEA.

1. globòsa *L.* ✿ Chili f. 1123, 1124. 1276
The globe-*flowered* Buddlea.
B. globiflòra N. Du Ham.
B. capitàta Jacq.
Pálquin *Feuillée It.*
Buddleia globuleux, Fr.
Kopftragende Budleje, Ger.

App. i. *Half-hardy Species of Búddlea.* 1277

B. salvifòlia *Lam.* ✹ □ C. G. H.
Lantàna salvifòlia L.
B. paniculàta *Wall.* ✹ □ Nepal.
B. salígna *Willd.* ✹ ⊔ C. G. H.
B. críspa *Royle.* Himalayas.

App. I. *Half-hardy ligneous Plants of the Order Scrophulariàceæ.* - 1277

Hallèr*ia* lùcida *L.* ✹ ⊔ C. G. H. fig. 1125.
Maurándy*a* semperflòrens *Jacq.* § ⊔ Mexico.
M. Barclay*àna* Bot. Reg. § ⊔ Mexico.
Mímulus glutinòsus *Willd.* ✹ ⊔ California.
Anthocércis viscòsa *R. Br.* ✹ ⊔ New Holland.
Calceolària integrifòlia *L.* ⌂ ⊔ Chili.
C. rugòsa *Fl. Per.* ⌂ ⊔ Chili.
C. séssilis *Hort.* ⌂ ⊔ figs. 1127, 1128.
Verónica decussàta *Ait.* ⌂ ⊔ Falkland Islands. figs. 1129, 1130.
Céls*ia* lanàta *Jacq.* ⌂ ⊔ fig. 1226.
Caprària lanceolàta *L.* ✹ ⊔ C. G. H.
Frœlínia salicifòlia Bot. Mag.
Alons*òa* R. et P.
Angelònia H. B. et Kunth.
Lophospérmum *Don.*
Rhodochìton *Zucc.*
Nycterínia *D. Don.*

Labiàceæ. 1278

✹ ✹⊔ ✹_⊔ ⌂ ⌂ ⌂⊔ ⌂_⊔ ⌂△

Saturèja montàna *L.* ⌂ South of Europe fig. 1131. 1278
S. capitàta *Willd.* ⌂ Levant - 1278
*Th*ýmus vulgàris *L.* ⌂ South of Europe fig. 1132. 1278
T. Mastichìna *L.* ⌂ ⊔ Spain 1278
T. *grandiflòrus* Hort.

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*Hy*ssòpus officinàlis *L.* ꝏ S. of Europe fig. 1133. 1278
*Teù*cr*ium* angustifòlium *Schreb.* ꝏ Spain 1279
T. frùticans *L.* ✱⌋ Spain fig. 1135, 1136. 1279
T. Màrum L. ꝏ⌋ South of Europe fig. 1134. 1279
T. flàvum *L.* ꝏ⌋ South of Europe 1279
*T. Pò*lium *L.* ꝏ⌋ S. of Europe 1279
T. corymbòsum *R. Br.* ✱⌋ Van Diemen's Land - - - 1279
*P*hlòmis fruticòsa *L.* ✱ Spain f. 1137. 1279
P. purpùrea *Sm.* ✱ South of Europe fig. 1138. 1279
*R*osmarìnus officinàlis *L.* ✱ South of Europe - - fig. 1139. 1279
*S*tàchys fruticulòsa *Bieb.* ꝏ Caucasus 1281
S. stenophýlla *Spr.* ꝏ Spain - 1281
S. palestìna *L.* ꝏ Syria - - 1281
S. lavandulæfòlia *Pers.* ꝏ Levant 1281
Lavándula Spìca *L.* ꝏ South of Europe fig. 1140. 1281
L. latifòlia *Ehrh.* ꝏ S. of Europe 1281
*A'*cynos gravèolens *Link.* ꝏ Crimea 1282
A. rotundifòlia *Pers.* ꝏ Spain - 1282
Gardoquì*a* Hoóker*i* Benth. ?ꝏ⌋ South Carolina - - - - 1282
Westríng*ia* rosmariniffórmis *Sm.* ✱⊔ New South Wales - - - - 1282
*S*álvia officinàlis *L.* ꝏ South of Europe fig. 1141. 1282
var. Leaves variegated ꝏ
Whole plant of a reddish hue ꝏ
Leaves larger than those of the species ꝏ fig. 1142
S. Hablitzi*àna* L. ꝏ Siberia f. 1143. 1283
S. pomífera *L.* ꝏ Candia fig. 1144. 1283
S. *crética frutéscens pomífera* Tourn.
Audibért*ia* incàna *Benth.* ꝏ Colombia fig. 1145. 1283

App. I. *Half-hardy ligneous or suffruticose Species of Labiàceæ.* - 1283

Lavándula *Stœ'chas L.* ꝏ⌋ S. of Europe. fig. 1149.
L. dentàta *L.* ꝏ⌋ Spain. fig. 1146.
L. pinnàta *Bot. Mag.* ꝏ⌋ Madeira. fig. 1147.
L. víridis *L'Hérit.* ꝏ⌋ Madeira.
Plectránthus fruticòsus *L'Hérit.* ꝏ⊔ C. G. H. fig. 1148.
*S*iderìtis cándicans *Ait.* ✱⌋ Madeira.
Leonòtis Leonùrus *R. Br.* ✱⌋ C. G. H.
Phlòmis Leonùrus L.
*S*phácele campanulàta *Benth.* ꝏ⊔ Chili. fig. 1151.
S. Lindlèy*i* Benth. Valparaiso.
Dracocéphalum canariénse *Com.* ꝏ⊔ Canaries.
*S*álvia spléndens *Ker.* S. America.
S. formòsa *Willd.* ✱⊔ S. America.
S. fúlgens *Cav.* S. America.
S. Gràham*i* Benth. ✱⊔ S. America. fig. 1151.
S. chamædryöìdes *Cav.* ꝏ⊔△ Mexico.
S. aúrea *L.* ꝏ⊔ C. G. H.
*P*ràsium màjus *L.* ꝏ⌋ Spain.
Prostanthèra lasiánthos *Lab.* ✱⊔ N. S. Wales.
Other half-hardy Species.

Page
Verbenàceæ. 1285
✱ ✱⌋ ✱□ ✱⊔

I. *VI'*TEX *L.* ✱ ✱⊔ - - 1285
THE CHASTE TREE.
Gatilier, Fr.
Kenschbaum, Ger.

1. *A'*gnus cástus *L.* ✱ Sicily f. 1152. 1285
The *officinal, or true,* Chaste Tree.
E*leágnum Theophrást*i *Lob.*
A*'gnus cástus* Blackw.
Arbreau Poivre, Poivre sauvage, Fr.
Variety ✱ - - - 1286
2 latifòlia *Mill.* ✱ South of France and Italy.

App. i. *Half-hardy Species of* V*ìtex.* 1286

V. incìsa *Lam.* ✱⊔ China.
V. *Negúndo* Bot. Mag.

App. I. *Half-hardy Plants of the Order* V*erbenàceæ.* - - 1286

Clerodéndrum inérme *R. Br.* ✱□ E. Indies. fig. 1153.
Volkamèria inérmis L.
C. speciosíssimum *Paxton* ? ✱⊔ ? Japan.
Duránt*a* cyànea *Hort.* ✱⊔ S. America.

Aloýs*ia c*itriodòra *Or.* ✱⌋ Chili fig. 1154. 1286
V*erbèna triphýlla* L'Hérit.
*Líppi*a *citriodòra* Kunth.

Myopórineæ. ✱⊔ 1287

Myóporum parvifòlium *R. Br.* ✱⊔ New Holland.
M. oppositifòlium *R. Br.* ✱⊔ New Holland.
M. diffùsum *R. Br.* ✱⊔ New Holland.
M. adscéndens *R. Br.* ✱⊔ New Holland.

Globulariàceæ. ꝏ⊔ 1287

Globulària longifòlia *L.* ꝏ⊔ Madeira fig. 1155. 1287
G. salicina Lam.

G. Alýpum *L.* ꝏ⊔ S. of Europe 1287
var. integrifòlium ꝏ⊔

Plumbaginàceæ. 1287
ꝏ⊔ ꝏ⌋

Státice monopétala *L.* ꝏ⊔ Sicily.
S. suffruticòsa *L.* ꝏ⌋ Siberia.
Plumbàgo capénsis *Thunb.* ꝏ⊔ Cape of Good Hope.

Chenopodiàceæ. 1287
✱ ✱⊔ ꝏ ꝏ ꝏ⊔ ⌇ ✱⊔

I. CHENOPO'DIUM *L.* ✱ ꝏ 1288
THE GOOSEFOOT.
Salsòla Sp.
Anscrine, Fr.
Gause Fuss, Ger.

Page
1. fruticòsum *Schrad.* England fig. 1156, 1157. 1288
The shrubby Goosefoot, *or Stonecrop Tree.*
Salsòla fruticòsa L.
The shrubby Glasswort.
Soude en Arbre, Fr.
Strauchartiges Salzkraut, Ger.

2. parvifòlium *R. et S.* Caucasus 1289
The small-leaved Goosefoot.
C. fruticòsum Bieb. Fl. Taur.
C. microphýllum Bieb. Supp. to Fl. Taur.
Salsòla fruticòsa Bieb. Casp.
Suæ̀da microphýlla Pall.

3. horténse *R. et S.* S. of Europe 1289
The Garden Goosefoot.
Suæ̀da horténsis Forsk.
Salsòla divérgens Poir.

II. *A*'TRIPLEX *L.* 1288, 1289
The Orache.

1. *Há*limus *L.* Spain fig. 1158. 1289
The Halimus Orache, *or Tree Purslane.*
Hálimus latifòlius sive fruticòsus Bauh.
Hálimus i. Clus.
The broad-leaved Sea Purslane Tree.
Arroche, Fr.
Strauchartige Melde, Ger.

2. *p*ortulacöìdes *L.* Britain f. 1159. 1290
The Purslane-like, *or shrubby*, Orache, *or Sea Purslane.*
Hálimus secúndus Clus.
Hálimus vulgàris Ger. Emac.
Hálimus seu Portulàca marìna Bauh.
A. *marítima.*
Hálimus et P*ortulàca marìna dicta angustifòlia* Ray.
The narrow-leaved Sea Purslane Tree.

III. DIO'TIS *Schreb.* 1288. 1290
The Diotis.
Ceratöìdes Tourn.
A'xyris L.
Ceratospérmum Pers.

1. Ceratöìdes *W.* Siberia f. 1160. 1291
The *two*-horned-*calyxed* Diotis.
A'xyris Ceratöìdes L.
Ceratospérmum pappòsum Pers.
A'xyris fruticòsa, flòribus fœmìneis lanàtis Gmel.
Achyránthes pappòsa Forsk.
Krascheninnikòvia Guildenst.
Urtìca fòliis lanceolàtis, fœminìnis hirsùtis, Roy.
Ceratöìdes orientàlis fruticòsa elæágni fòlio Tourn.
Orientalisches Doppelohr, Ger.

App. I. *Half-hardy Species of Chenopodiàceæ.* 1291

Anábasis *t*amariscifòlia *L.* Spain.
A. aphýlla *L.* Asia Minor.
Salsòla articulàta Forst.
Kòchia prostràta *Schr.* South of Europe.
Salsòla prostràta L.
Bòsea *Yervamòra* L. Canaries.
Camphorósma monspellaca *Schk.* South of Europe.
Other Genera belonging to Chenopodiàceæ.

Polygonàceæ. 1292

I. TRAGOPY'RUM *Bieb.* 1292
The Goat Wheat.
Polýgonum L.

1. lanceolàtum *Bieb.* Siberia fig. 1161. 1292
The lanceolate-*leaved* Goat Wheat.
P*olýgonum frutéscens* Willd.
Strauchartiger Knöterig, Ger.

2. *b*uxifòlium *Bieb.* Siberia f. 1162. 1293
The Box-leaved Goat Wheat.
P*olýgonum crìspulum var. α* Sims.
P. *caucásicum* Hoffmansegg.

3. polýgamum *Spr.* Carolina f. 1163. 1293
The polygamous-*sexed* Goat Wheat.
P*olýgonum polýgamum* Vent.
P. *parvifòlium* Nutt.

T. púngens *Bieb.*
T. glaúcum *Spr.*
T. grandiflòrum *Bieb.*

II. *A*TRAPHA'XIS *L.* 1292. 1294
The Atraphaxis.

1. spinòsa *L.* Levant fig. 1164. 1294
The spine-*branched* Atraphaxis.
A'triplex orientàlis, frùtex aculeàtus, flòre púlchro Tourn.

2. undulàta *L.* Cape of Good Hope 1295
The waved-*leaved* Atraphaxis.

III. CALLI'GONUM *L.* 1292. 1295
The Calligonum.
Pallàsia L.
Pterocóccus Pall.

1. Pallàs*ia* L'Hérit Caspian Sea figs. 1165, 1166. 1295
Pallas's Calligonum.
Pterocóccus aphýllus Pall. Voy.
Callígonum polygonöìdes Pall. Itin.
Pallàsia cáspica L.
Pallàsia Pterocóccus Pall. Fl. Ross.
Caspischer Hackenknopf.

C. combòsum *L'Hérit.* - - - - 1296
C. Pánderi L'Hérit. - - - - 1296

App. I. *Half-hardy Species of Polygonàceæ.* 1296

Brunníchia cirrhòsa *Gærtn.* Carolina.
*R*ùmex Lunària *L.* Canaries. fig. 1167.
*P*olýgonum adpréssum *R. Br.* Van Diemen's Land.

Lauràceæ. 1296

I. *LAU'RUS Plin.* - - 1296
The Laurel, *or Bay*, Tree.
Sassafras *and* Benzòin, *C. G. Von Esenbeck.*
Daphnē, Greek.

A. *Plants evergreen; hardy.*

1. nóbilis *L.* S. Europe pl. 215. 1297
The noble Laurel, *or Sweet Bay.*
Laúrus Camer.
L. *vulgàris* Bauh.
Laurier commun, Laurier franc, Laurier d'Apollon, Laurier à sauce, Fr.
Gemeine Lorbeer, Ger.
Varieties - - 1297
2 undulàta *Mill.*
3 salicifòlia *Swt.*
L. *n. angustifòlia* Lodd. Cat
4 variegàta *Swt.*
L. *n. fòl. var.* Lodd. Cat.
5 latifòlia *Mill.*
6 críspa *Lodd. Cat.*
7 flòre plèno *N. du Ham.*

Page
B. *Plants evergreen; half-hardy.*
2. carolinénsis *Catesb.* ♀ North America fig. 1168, 1169. 1299
The Carolina Laurel, *or Red Bay.*
L. Borbònia L. sp.
L. axillàris Lam.
Borbònia sp. Plum.
Pérsea Borbònia Spreng.
The broad-leaved Carolina Bay.
Laurier rouge, Laurier Bourbon, Laurier de Caroline, Fr.
Carolinischer Lorbeer, Rother Lorbeer, Ger.
Varieties ♀ - - 1299
2 glàbra *Pursh.* ♀
3 pubéscens *Pursh.* ♀
4 obtùsa *Pursh.* ♀
3. Catesbiàna Michx. ✹ Georgia - 1300
Catesby's Laurel.
4. aggregàta *Sims.* ✹ China f. 1170. 1300
The grouped-*flowered* Laurel.
L. fœ`tens *Ait.* ♀ ⊔ Madeira. - - - 1301
L. *madeirénsis* Lam.
Pérsea fœ`tens Spreng.
L. Mýrrha Lour. China - - - - 1301
L. índica *L.* ♀ ⊔ India - - - 1301
C. *Leaves deciduous.*
5. *Sássafras* L. ☨ North America pl. 216, 217. 1301
The Sassafras Laurel, *or Sassafras Tree.*
Córnus más odoràta, folio trifido, margine plano, Sassafras dicta, Pluk.
Sassafras arbor, ex Florida, ficulneo folio, Bauh.
Sássafras *sp.* C. G. Nees Von Esenbeck.
Pérsea Sássafras *Spreng.*
Laurier Sassafras, Fr.
Sassafras Lorbeer, Ger.
Varieties ☨ - - 1301
The red ☨
L. *subgenus Euósmus* Nutt.
Sássafras *L.*
The white ☨
L. *e. álbida* Nutt.
6. *Benzòin* L. ❀ Virginia f. 1171. 1303
The Benzoin Laurel, *or Benjamin Tree.*
Arbor virginiana citreæ vel limoni folio, benzoinum fundens, Comm.
Laúrus æstivàlis Wangh.
Pseùdo Benzòin *Michx.*
Euósmus Benzòin *Nutt.*
Benzòin *sp.* C. G. Nees Von Esenbeck.
Spice Bush, Spice Wood, Wild Allspice, Amer.
Laurier faux Benzoin, Fr.
Benzoin Lorbeer, Ger.
7. (*B.*) Diospýrus *Pers.* ❀ Virginia fig. 1172. 1304
The Diospyrus-*like* Laurel.
L. *Euósmus Diospýrus* Nutt.
L. *diospyròìdes* Michx.
? L. *melissæfòlia* Walter.
8. (*B.*) æstivàlis *L.* ❀ Virginia 1304
The summer Laurel, *or Willow-leaved Bay.*
L. *enérvia* Mill.
L. *Euósmus æstivàlis* Nutt.
Pond Bush Amer.
Sommer Lorbeer, Ger.
9. geniculàta *Michx.* ❀ Virginia fig. 1173. 1305
The knee-flexed-*branched* Laurel.
L. *Euósmus geniculàta* Nutt.
L. *æstivàlis* Willd.

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App. I. *Half-hardy Species of* Lauràceæ. 1305
Cinnamòmum *Cámphora* Swt. ♀ ☐ Japan. fig. 1174.
The Camphor Tree.
Laúrus Cámphora L.
C. vèrum *Swt.* ♀ ☐ Ceylon. fig. 1175.
Laúrus Cinnamòmum L.
Laúrus Cássia Bot. Mag.
C. Cássia D. Don. ♀ ☐ Ceylon.
The wild Cinnamon.
Laúrus Cássia L.
Laúrus Cinnamòmum Bot. Rep.
Pérsea Cássia Spr.
Other ligneous plants belonging to this order.

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*Prote*àceæ. ✹ ⊔ 1306
Bánksia littoràlis *R. Br.* ✹ ⊔ New Holland.
B. oblongifòlia *Cav.* ♀ ⊔ New South Wales.
Grevíllea rosmarinifòlia *Cun.* ✹ ⊔ N. South Wales. f. 1176.
G. acuminàta *R. Br.* ✹ ⊔ New South Wales. f. 1177, 1178.
Hàkea aciculàris *R. Br.* ✹ ⊔ New South Wales.
H. suavèolens *R. Br.* ✹ ⊔ New Holland.
H. pugionifórmis *R. Br.* ✹ ⊔ New South Wales. fig. 1179.

T*hymelàceæ.* - 1306
❀ ✹ ✹ ⊔ ✲ ✸ ⊔ ∽
I. *DA'*PHNE *L.* ❀ ✹ ✹ ⊔ ✲ ∽ 1307
THE DAPHNE.
T*hymelæ`a* Tourn.
A. *Leaves deciduous.*
1. *Mezèreum* L. ❀ N. of Eu. f. 1180. 1307
The Mezereon Daphne, *or common Mezereon.*
Spurge Olive, Spurge Flax; Flowering Spurge, Parkinson.
Dwarf Bay Gerard.
Lauréole femelle, Bois gentil, Mézéreon, Bois joli, Fr.
Gemeiner Seidelbast, Kellerhalz, Ger.
Peperachtige Daphne, Dutch.
Laureola femina, Biondella, Camelia, Ital.
Laureola hembra, Span.
Varieties ❀ - - 1308
2 flòre álbo ❀
3 autumnàle ❀
2. altàica *Pall.* ❀ Siberia fig. 1181. 1308
The Altaic Daphne.
Daphné altäique, Lauréole de Tartarie, Fr.
Sibirischer Seidelbast, Ger.
3. alpìna *L.* ✲ Switzerland f. 1182. 1309
The Alpine Daphne.
The Alpine Chamelea, Marsh.
Daphné des Alpes, Fr.
Alpen Siedelbast, Ger.
B. *Erect. Leaves persistent. Flowers lateral.*
4. Laurèola *L.* ✹ Britain f. 1183. 1309
The Laureola Daphne, *or Spurge Laurel.*
Daphnöìdes vèrum, vel Laurèola, Gesn.
Laurèola Ray.
T*hymelæ`a Laurèola* Scop.
The Evergreen Daphne.
Lauréole mâle, Lauréole des Anglais, Fr.
Immergrüner Seidelbast, Ger.
5. póntica *L.* ✹ Asia Minor f. 1184. 1310
The Pontic Daphne, *or twin-flowered Spurge Laurel.*
T*hymelæ`a póntica citrei foliis* Tourn.
Lauréole du Levant, Fr.
Pontischer Siedelbast, Ger.
Varieties ✹ - - 1310
2 rùbra *Hort.* ✹
3 fòliis variegàtis *Lodd. Cat.* ✹

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6. *Th*ymelæ`a *L.* ❀ Spain f. 1185. 1310
The Thymelæa, *or Milkwort-like*, Daphne.
T*hymelæ`a foliis polygalæ glabris* Bauh.
T. *alpìna glàbra, flosculis subluteis ad foliorum ortum sessilibus*, Pluk.
Sanamúnda víridis vel glábra Bauh. Prod.
Sanamúnda glàbra Bauh. Hist.
Passerìna Thymelæ`*a* Dec.
The Wild Olive.
La Thymelie, Fr.
Astloser Seidelbast, Ger.

7. *Tárton raíra* L. ❀ South of France fig. 1186. 1311
The Tarton-raira, *or silvery-leaved*, Daphne.
T*hymelæ`a foliis candicantibus et serici instar mollibus* Bauh. Pin.
Tarton-Raire Gallo-provinciæ Monspeliensium Lob.
Sanamúnda argentàta latifòlia Barr.
Passerìna Tárton-Raíra *Schrad.*
The oval-leaved Daphne.
Lauréole blanche, Fr.
Silberblättriger Seidelbast, Ger.

8. (? *T.*) pubéscens *L.* ❀ Austria - 1311
The pubescent Daphne.
T*hymelæ`a itálica, Tarton-raire Gallo-provinciæ similis, sed per omnia major*, Micheli.
Behaarter Seidelbast, Ger.

9. (? *T.*) tomentòsa *Lam.* ❀ Asia Minor 1311
The tomentose Daphne.
Passerìna villòsa L.
Lauréole cotonneuse, Lam.

C. *Erect. Leaves persistent. Flowers terminal.*

10. collìna *Sm.* ❀ S. Italy fig. 1187. 1311
The hill-*inhabiting* Daphne, *or Neapolitan Mezereon.*
D. *collìna* α Bot. Rep.
? D. bu*xifòlia* Vahl.
Daphné des Collines, Lauréole à Feuilles de Santé, Fr.
Stumpfblättriger Seidelbast, Ger.

11. (c.) neapolitàna *Lodd.* ❀ S. of Italy fig. 1188. 1312
The Neapolitan Daphne.
D. *collìna β neapolitàna* Lindl.

12. (c.) oleöìdes *L.* ❀ Crete f. 1189. 1312
The Olive-like Daphne.
Chamædaphnöìdes crética Alpin.
T*hymelæ`a crética oleæ folio utriusque glabro* Tourn.
D*áphne salicifòlia* Lam.
Lauréole à Feuilles d'Olivier, Fr.
Oelbaumblättriger Seidelbast, Ger.

13. (c.) serícea *Vahl.* ❀ Candia - 1312
The silky-*leaved* Daphne.
T*hymelæ`a crética oleæ folio subtus villoso* Tourn.
D*áphne oleæfòlia* Lam.
Seidenartiger Seidelbast, Ger.

14. striàta *Trat.* ❀ Switzerland - 1313
The striated-*calyxed* Daphne.

D. *Erect. Leaves persistent. Flowers in Racemes.*

15. *G*nídium *L.* ❀ Spain f. 1190. 1313
The Gnidium, *or Flax-leaved*, Daphne.
T*hymelæ`a foliis lini* Bauh.
Spurge Flax, Mountain Widow Wayle.
Daphné Gnidium, Lauréole à Panicule, Fr.
Rispenblättriger Seidelbast, Ger.

E. *Prostrate. Leaves persistent. Flowers terminal, aggregate.*

16. *C*neòrum *L.* ∾ Switzerland fig. 1191. 1313
The Garland-flower, *or trailing*, Daphne.
C*neòrum* Matth.
Wohlriechender Seidelbast, Ger.
Varieties ∾ - - - 1313
2 fòliis variegàtis ∾
3 flòre álbo ∾

App. i. *Half-hardy Species of* D*áphne.* 1314

D. odòra *Thunb.* ❀ ⊔ China.
D. *sinénsis* Lam.
The sweet-scented Daphne.
Lauréole de Chine, Daphné odorant, Fr.
Wohlriechender Seidelbast, Ger.
Var. 2 variegàta *Lodd. Cat.* ❀ ⊔
3 rùbra *D. Don.* ❀ ⊔ fig. 1192.

D. hýbrida *Swt.* ❀ ⊔ Hybrid f. 1193.
D. *delphínia* of Fr. Gardens.
D. *dauphínii* of Eng. Gardens.

D. índica *L.* ❀ ⊔ India.
D. papyràcea *Wal.* ❀ ⊔ Nepal.
D. *cannábina* Wal.

II. DI'RCA *L.* ✿ - - 1307. 1314
The Dirca, *or Leather-wood.*
T*hymelæ`a* Gron.

1. palústris *L.* ✿ Virginia f. 1194. 1314
The Marsh Dirca.
Moorwood.
Bois de Cuir, Bois de Plomb, Fr.
Sumpf Lederholz, Ger.

App. I. *Half-hardy ligneous Plants belonging to the Order* Thymel*àceæ.* - 1315

Gnídia imbricàta *L.* ⚘ ⊔ Cape of Good Hope.
G. *denudàta* Bot. Reg.
Passerìna filifórmis *L.* ⚘ ⊔ Cape of Good Hope.
Pimelèa drupàcea *Lab.* ⚘ ⊔ New Holland.

Santalàceæ. ♆ ❀ 1315

I. NY'SS*A* L. ♆ - - 1315, 1316
The Nyssa, *or Tupelo Tree.*

1. biflòra *Michx.* ♆ Virginia pl. 218. fig. 1195, 1196. 1317
The twin-flowered Nyssa.
N. aquática L. sp.
N. caroliniána L.
N. integrifòlia Ait.
N. pedúnculis uniflòris Gron.
Mountain Tupelo Mart.
Gum Tree, Sour Gum Tree, Peperidge, Amer.

2. (b.) villòsa *Michx.* ♆ North America fig. 1197, 1198. 1317
The hairy-*leaved* Nyssa.
N. sylvática Michx.
N. multiflòra Wangh.
N. montána Hort.
N. pedúnculis multiflòris Gron.
Sour Gum Tree, Black Gum, Yellow Gum, Amer.
Haariger Tulpelobaum, Ger.

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3. cándicans *Michx.* ♆ Carolina fig. 1199. 1318
The whitish-*leaved* Nyssa, *or Ogechee Lime Tree.*
N. capitàta Walt.
N. coccínea Bartr.
Sour Tupelo Tree, Wild Lime.
Weisslicher Tulpelobaum, Ger.

4. grandidentàta *Michx.* ♆ North America fig. 1200, 1201. 1319
The deeply-toothed-*leaved* Nyssa, *or Large Tupelo Tree.*
N. tomentòsa and *N. angulìzans* Michx.
N. denticulàta Ait.
N. angulòsa Poir.
N. uniflòra, Wangh.
Wild Olive, Amer.
Virginian Tupelo, Mart.

II. *O*SYRIS *L.* ✹ - - 1316. 1320
The Osyris, *or Poet's Cassia.*
Càsia Camer.

1. álba *L.* ✹ Italy - fig. 1202. 1320
The white-*flowered* Osyris.
O. *fòliis lineáribus acùtis* Lœfl.
O. *frutéscens baccífera* Bauh.
Càsia poética Monspeliénsium Cam.
Càsia Latinòrum Alp.
Càsia Monspèlii dícta Gesn.
Weisse Osyris, Ger.

Elæagnàceæ. ♆ ✾ ✾⊔ 1320

I. *E*LÆA'GNUS *Tourn.* ♆ ✾ ✾⊔ 1320, 1321
The Elæagnus, *Oleaster, or Wild Olive Tree.*
Chalef, Fr.
Wilde Oelbaum, Ger.

1. horténsis *Bieb.* ♆ South of Europe pl. 219. fig. 1203. 1321.
The Garden Elæagnus.
E. *angustifòlia* L.
E. *inérmis* Mill.
E. *argénteus* Mœnch.
E. *orientàlis* Delisle.
? E. *argéntea* Wats.
Jerusalem Willow.
Olivier de Bohème, Chalef à Feuilles étroites, Fr.
Schmalblättriger Oleaster, Ger.
Varieties ♆ - - - 1322
1 angustifòlia *Bieb.* ♆
E. *angustifòlia* L.
2 dactylifórmis ♆
3 orientàlis ♆
E. *orientàlis* L.
4 spinòsa ♆
E. *spinòsa* L.

2. argéntea *Ph.* ✾ Hudson's Bay fig. 1204. 1323
The silver-*leaved* Elæagnus.
Missouri Silver Tree, U. S. of N. Amer.

App. i. *Half-hardy Species of* Elæágnus. 1324
E. conférta *Roxb.* ✾ ⊔ Nepal.
E. arbòrea *Roxb.* ♆ ⊔ Nepal.
E. latifòlia *L.* ✹ ☐ East Indies.
E. salicifòlia ? *D. Don.* ✾ ⊔ fig. 1205.

II. *H*IPPO'PHAE *L.* ♆ ✾ 1321. 1324
The Hippophae, *Sea Buckthorn, or Sallow-thorn.*
Rhamnöìdes Tourn.
Argoussier, Fr.
Haffdorn, Sanddorn, Ger.
Espino amarillo, Span.

1. Rhamnöìdes *L.* ♆ ✾ Europe pl. 220. fig. 1206. 1324
The Buckthorn-like Hippophae.
Rhamnöìdes florífera sálicis fòlio, Tourn.
Rhamnöìdes fructífera Ray.
Argoussier faux Nerprun, Fr.
Weidenblättriger Sanddorn, Ger.
Arve, Saule E'pineux, Alps of Switzerland.
Varieties ♆ ✾ - - 1325
2 angustifòlia ♆ ✾
3 sibírica ♆ ✾
H. *sibírica* Lodd. Cat.

2. salicifòlia *D. Don.* ♆ ✾ Nepal fig. 1207. 1326
The Willow-leaved Hippophae.
H. *conférta* Wall.

III. SHEPHE'RD*IA* Nutt. ♆ ✾ 1321. 1327
The Shepherdia.
Hippóphae L.

1. argéntea *Nutt.* ✾ ♆ North America fig. 1208. 1327
The silvery-*leaved* Shepherdia.
Hippóphae argéntea Pursh.
Missouri Silver Leaf, Buffalo Berry Tree, Amer.
Rabbit Berry, Beef Suet Tree, American Indians.
Graisse de Buffle, Buffalo Fat, French Traders.

2. canadénsis *Nutt.* ✾ North America fig. 1209. 1327
The Canadian Shepherdia.
Hippóphae canadénsis L.

Aristolochiàceæ. ⚲ ℓ⊔ ∼⊔ 1328

I. *A*RISTOLO'CHIA *L.* ⚲ ℓ⊔ ∼⊔ 1328
The Birthwort.
Aristoloche, Fr.
Osterluzey, Ger.

1. sìpho *L'Hérit.* ⚲ N. Am. f. 1210. 1329
The Siphon-*like, or Tube-flowered*, Birthwort.
A. *macrophýlla* Lam.
Aristoloche Syphon, Fr.
Grossblättrige Osterluzey, Ger.
Pipe Vine, or Birthwort, Amer.

2. tomentòsa *Sims.* ⚲ North America fig. 1211. 1329
The tomentose Birthwort.

App. i. *Half-hardy Species of Aristolòchia.* 1329
A. sempervìrens *L.* ∼ ⊔ Candia.
A. glaúca *Desf.* ℓ ⊔ Barbary.
A. altíssima *Desf.*
A. caudàta *Desf.*
A. trilobàta *Willd.* South America.

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Euphorbiàceæ. 1330

I. *EUPHO'RBIA* L. 1331
The Euphorbia, *or Spurge*.
Tithýmalus Tourn.
Euphorbe, Fr.
Wolfsmilch, Ger.

E. Charàcias *L.* Britain f. 1212. 1331
E. *aléppica* Hort.

E. spinòsa *L.* South of Europe fig. 1213. 1331

App. i. *Half-hardy Species of* Euphórbia. 1332

E. dendröides *L.* Italy.
E. mellífera *Ait.* Madeira. fig. 1214.
Other species.

II. STILLI'NG*IA* Garden. 1330. 1332
The Stillingia.

1. *l*igústrina *Willd.* Carolina - 1332
The Privet-*leaved* Stillingia.

III. *BU'XUS Tourn.* 1330. 1332
The Box Tree.
Buis, Fr.
Buxbaum, *Buchsbaum*, Ger.

1. sempervìrens *L.* Europe 1333
The evergreen, *or common*, Box Tree.
Búxus Ray, and other authors.
Buis commun, *Bois béni*, Fr.
Buchsbaum, Ger.
Busso, *Bossolo*, *Mortel*, Ital.

Varieties and Subvarieties - - - 1333
1 arboréscens *Mill. Dict.*
1 argéntea *Hort.*
2 aúrea *Hort.*
3 marginàta *Hort.*
2 angustifòlia *Mill. Dict.*
1 variegàta *Hort.*
3 suffruticòsa *Mill. Dict.* f. 1215
B. *hùmilis* Dod.
B. *s. nàna* N. Du Ham.
Buis nain, *Buis à Bordures*, *Buis d'Artois*, *Buis de Hollande*, *Petit Buis*, Fr.
Zwerch Buchsbaum, Ger.
4 *m*yrtifòlia *Lam.*

2. baleárica *Willd.* Minorca fig. 1220, 1221. 1341
The Balearic Box.
B. *s. var. gigantèa* N. Du Ham.
Minorca Box.
Buis de Minorque, *Buis de Mahon*, Fr.
Balearischer Buchsbaum, Ger.

App. i. *Half-hardy Species of* Búxus. 1341

B. chinénsis *Lk.* China.

App. I. *Half-hardy Species belonging to the Order* Euphorbiàceæ. - 1341

Plagiánthus divaricàtus *Forst.* New Zealand.
P. sidöides *Hook.*
Cluýtia alaternöides *Bot. Mag.* Cape of Good Hope.

Urticàceæ. 1342

I. *MO'RUS Tourn.* 1342, 1343
The Mulberry Tree.
Mûrier, Fr.
Maulbeere, Ger.

1. nìgra *Poir.* Persia pl. 221, 222. fig. 1222. 1343
The black-*fruited*, *or common*, Mulberry.
Mòrus Dod.
M. *frúctu nìgro* Bauh.

Variety - - - 1344
2 laciniàta *Mill. Dict.*

2. álba *L.* China pl. 223, 224. 1348
The white-*fruited* Mulberry Tree.
M. *cándica* Dod.
M. *frúctu álbo* Bauh.
M. *álba frúctu minòri álbo insúlso* Du Ham.

Varieties - - 1348
2 multicáulis *Perrottet.*
M. *tatárica* Desf., not of L. or Pall.
M. *bullàta* Balbis.
M. *cucullàta* Hort.
Chinese black Mulberry, Amer.
Perrottet Mulberry, *Many-stalked Mulberry*.
Mûrier Perrottet, Fr.
Mûrier à Tiges nombreuses, *Mûrier des Philippines*, Ann. des Sci.
Moro delle Filippine, Ital.
3 Morrettiàna *Hort.*
Dandolo's Mulberry.
4 macrophýlla *Lodd. Cat.*
M. *a. latifòlia* Hort.
M. *hispánica* Hort.
Mûrier d'Espagne, *Feuille d'Espagne*, Fr.
5 romàna *Lodd. Cat.*
M. *a. ovalifòlia.*
Mûrier romain, Fr.
6 nervòsa *Lodd. Cat.*
M. *nervòsa* Bon. Jard.
M. *subálba nervòsa* Hort.
Subvariety.
2 longifòlia *Bon. Jard.*
7 itálica *Hort.*
M. *itálica* Lodd. Catt.
Subvariety.
2 rùbra
M. *rùbra* Lodd. Cat.
8 ròsea *Hort.*
Mûrier rose, *Feuille rose*, Fr.
9 columbássa *Lodd. Cat.*
Columba, Fr.
10 membranàcea *Lodd. Cat.*
Mûrier à Feuilles de Parchemin, Fr.
11 sinénsis *Hort.*
M. *sinénsis* Hort.
M. *chinénsis* Lodd. Cat.
The Chinese white Mulberry, Amer.
12 pùmila *Nois.*
M. *a. nàna* Hort. Brit.

Other Varieties - - 1350
Wild Mulberries.
La Feuille rose.
M. *a.* 8 *ròsea.*
La Feuille dorée.
M. *a. lùcida* Hort.
M. *lùcida* Hort.

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La Reine bâtarde.
? *Foglia zazola,* Ital.
La Femelle.
Grafted Mulberries.
La Reine.
La grosse Reine.
M. *a. macrophylla subvar.*
La Feuille d'Espagne.
M. *a.* 4 *macrophylla.*
La Feuille de flocs.
? *Foglia doppia,* Ital.

3. (a.) constantinopolitàna *Poir.* ‡ Turkey 1358
The Constantinople Mulberry Tree.
M. *byzantina* Sieb.

4. (a.) tatárica *Pal.* ‡ Banks of the Volga - - fig. 1225. 1358
The Tartarian Mulberry Tree.

5. rùbra *L.* ‡ N. America pl. 225. 1359
The red-*fruited* Mulberry Tree.
M. *virginica* Pluk.
M. *pennsylvánica* Nois.
? *Variety* ‡ - - - 1360
canadénsis *Lam.* ‡

6. (r.) scàbra *Willd.* ‡ N. America 1360
The rough-*leaved* Mulberry Tree.
M. *canadénsis* Poir.

App. i. *Half-hardy Species of* Mòrus. 1360
M. índica *L.* ♀ □ East Indies.
M. mauritiàna *Jacq.* ♀ □ Madagascar.
M. latifòlia *Willd.* Isle of Bourbon.
M. austràlis *Willd.* Isle of Bourbon.
M. celtidifòlia *Thunb.* Quito.
M. corylifòlia *Thunb.* Quito.
M. cálcar-gálli *Cum.* New South Wales.
M. atropurpùrea. Nepal.
M. parvifòlia. Nepal.
M. serràta. Nepal.
M. *heterophylla.*
M. lævigàta viridis. Nepal.
M. scándens. Nepal.

II. BROUSSONE'T*IA* Vent. 1342. 1361
The Broussonetia.
Mòrus Sèba Kæmpf.
Papỳrus Encyc. Bot.

1. papyrífera *Vent.* ‡ China pl. 226. 1361
The paper-bearing Broussonetia, *or Paper Mulberry.*
Mòrus papyrífera L.
Variety ‡ - - - 1361
2 cucullàta ‡
B. cucullàta Bon Jard.
B. spatulàta Hort. Brit.
B. naviculàris Lodd. Cat.

III. MACLU'R*A* Nutt. ♀ 1342. 1362
The Maclura.
Tóxylon Rafinesque.

1. aurantìaca *Nutt.* ♀ North America fig. 1226, 1227, 1228. 1362
The orange-like-*fruited* Maclura, *or Osage Orange.*
Bow-wood, Yellow-wood, N. Amer.

IV. *F*I'CUS Tourn. ‡ 1343. 1365
The Fig Tree.
Figuier, Fr.
Feigenbaum, Ger.

1. Cárica *L.* ‡ S. Europe pl. 227. 1365
The *common* Fig Tree.
F. *commùnis* Bauh.
F. *hùmilis* and F. *sylvéstris* Tourn.
Figuier commun, Fr.
Gemeine Feigenbaum, Ger.
Varieties - - 1366
Garden Varieties.

V. BO'RY*A* W. ‡ ☘ - 1343. 1370
The Borya.
Adèlia Michx.
Bigelònia Sm.

1. *ligústrina Willd.* ‡ N. America 1370
The Privet-like Borya.
Adèlia ligústrina Michx.
Bigelòvia ligústrina Sm.

2. (? *l.*) acuminàta *Willd.* ☘ Carolina fig. 1229. 1371
The acuminate-*leaved* Borya.
Adèlia acuminàta Michx.
Bigelòvia acuminàta Sm.

3. (*l.*) porulòsa *Willd.* ☘ Georgia. 1371
The pore-*like-dotted-leaved* Boyra.
Adèlia porulòsa Michx.
Bigelòvia porulòsa Sm.
? *Bigelòvia ovàta* Lodd. Cat.

4. distichóphylla *Nutt.* ☘ E. Tennessee 1371
The two-rowed-leaved Borya.

Ulmàceæ. ‡ ♀ □ ☘ - 1371

I. *U*'LMUS *L.* ‡ - - 1371. 1373
The Elm.
Orme, Fr.
Ulm, or Rüster, Ger.
Olmo, Ital.

1. campéstris *L.* ‡ Britain pl. 228, 229 fig. 1232. 1238, 1239. 1374
The *English,* field, *or common small-leaved,* Elm.
U. *Atínia* Pliny.
U. *mìnor, fòlio angústo scàbro,* Ger. Emac.
Varieties ‡ - - - 1375
A. *Timber Trees.*
1 vulgàris ‡
U. *campéstris* Hort. Dur.
2 latifòlia *Hort.* ‡
3 álba *Masters.* ‡
4 acutifòlia *Masters.* ‡
5 strícta *Hort. Dur.* ‡ pl. 230.
Red English Elm.
6 vìrens *Hort.* ‡
Kidbrook Elm.
7 cornubiénsis *Hort.* ‡
The Cornish Elm.
U. *strìcta* Lindl.
Subvarieties. ‡
2 parvifòlia *Lindl.* ‡
U. *s. microphýlla* Lodd. Cat.
áspera *Lodd. Cat.*
críspa *Lodd. Cat.*
8 sarniénsis ‡
The Jersey Elm.
U. *sarniénsis* Lodd. Cat.
9 tortuòsa ‡
The twisted Elm.
U. tortuòsa Lodd. Cat.
? *Orme tortillard,* Fr.
B. *Ornamental, or curious, Trees.*
10 fòliis variegàtis *Lodd. Cat.* ‡
11 betulæfòlia ‡
U. *betulæfòlia* Lodd. Cat.
12 viminàlis ‡ pl. 231.
U. *viminàlis* Lodd. Cat.

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13 parvifòlia ‡ fig. 1230.
U. *parvifòlia* Jacq.
U. *microphýlla* Pers.
U. *pùmila var. β (transbäicalénsis)* Pall.
U. *pùmila* Willd.
U. *p. fòliis pàrvis, &c.*, Pluk.
U. *hùmilis* Enum.
14 planifòlia ‡ pl. 232.
U. *planifòlia* Hort.
15 chinénsis ‡ fig. 1231.
U. *chinénsis* Pers.
Thé de l'Abbé Gallois, Orme nain, Fr.
16 cucullàta *Hort.* ‡
17 concavæfòlia *Hort.* ‡
18 fòliis aúreis *Hort.* ‡

Other Varieties.
U. c. nàna *Lodd.* Cat.
U. c. fòliis maculátis *Lodd. Cat.*
U. dùbia *Lodd. Cat.*
U. viscòsa *Lodd. Cat.*

French Varieties - 1378
L'Orme à Feuilles larges et rudes.
L'Orme Tell, l'Orme Tilleul, l'Orme de Hollande.
The British, or Lime Tree, Elm.
L'Ormille, l'Orme nain.
The dwarf Elm.
L'Orme à Feuilles lisses et glabres.
The shining smooth-leaved Elm.
Le petit Orme à Feuilles panachées de blanc.
L'Orme à Feuilles lisses panachées de blanc.
The shining silvery-leaved Elm.
Le petit Orme à Feuilles panachées de jaune.
The dwarf golden-leaved Elm.
L'Orme à petites Feuilles, l'Orme mâle, l'Orme pyramidal.
The small-leaved Elm.
L'Orme à très-grandes Feuilles, l'Orme femelle, l'Orme de Trianon.
The large-leaved Elm.
L'Orme de Hollande à grandes Feuilles panachées.
The variegated Dutch Elm.
L'Orme tortillard.
U. *tortuòsa* Lodd. Cat.
The twisted Elm.

2. (c.) suberòsa *Mœnch.* ‡ England pl. 233. fig. 1240. 1395
The cork-*barked* Elm.
U. *campéstris* Woods.
U. *campéstris* and *Theophrásti Du Ham.*
U. *vulgatíssima fòlio làto scàbra* Ger. Emac.
U. *montàna* Cam.
Common Elm Tree, Hunt Evel.
L'Orme Liège, l'Orme-fungeux, Fr.

Varieties ‡ - - 1395
1 vulgàris ‡
The *Dutch* cork-*barked* Elm.
U. *suberòsa* Hort. Dur.
2 fòliis variegàtis *Lodd. Cat.* ‡
U. *suberòsa variegàta* Hort. Dur.
3 âlba ‡
U. *suberòsa álba* Masters.
4 erécta *Lodd. Cat.* ‡
5 var. ‡
The broad-leaved Hertfordshire Elm, *Wood.*
6 var. ‡
The narrow-leaved Hertfordshire Elm, *Wood.*

3. (c.) màjor *Sm.* ‡ England pl. 234, 235. fig. 1241. 1395
The greater, *or Dutch cork-barked*, Elm.
U. *hollándica* Mill.
U. *màjor hollándica, &c.*, Pluk.
U. *màjor, amplióre fòlio, &c.*, Du Ham.
Tília más Matth.
U. *latifòlia* Michx.

4. carpinifòlia *Lindl.* ‡ England - 1396
The Hornbeam-leaved Elm.

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5. effùsa *Willd.* ‡ England pl. 236, 237. fig. 1242. 1397
The spreading-*branched* Elm.
U. *ciliàta* Ehrh.
U. *pedunculàta* Lam.
U. *octándra* Schk.
U. *fòlio latíssimo, &c.*, Buxb.
U. *læ`vis* Pall.
L'Orme pédonculé, Fr.

6. montàna *Bauh.* ‡ England fig. 1243, 1244. 1398
The mountain, *Scotch, or Wych*, Elm.
U. *glàbra* Huds.
U. *effùsa* Sibth.
U. *scàbra* Mill.
U. *nùda* Ehrh.
U. *campéstre* Willd.
Wych Hazel of old authors.

Varieties ‡ - - 1398

A. *Timber Trees.*
1 vùlgàris ‡
2 rugòsa *Masters.* ‡
U. *rugòsa* Lodd. Cat.
3 màjor *Masters.* ‡ pl. 238.
4 mìnor *Masters.* ‡
5 cebennénsis *Hort.* ‡
The Cevennes Elm.
6 nìgra ‡
The black *Irish* Elm.
U. *nìgra* Lodd. Cat.
7 austràlis *Hort.* ‡

B. *Ornamental or curious Varieties.*
8 péndula ‡ pl. 239.
U. *péndula* Lodd. Cat.
U. *glàbra decúmbens* Hort. Dur.
U. *horizontàlis* Hort.
U. *rùbra* Hort. Soc. Gard.
9 fastigiàta *Hort.* ‡ pl. 240.
U. *glàbra replicàta* Hort. Dur.
U. *Fórdii Hort.*
U. *exoniénsis* Hort.
10 críspa ‡
The curled-*leaved* Elm.
? U. *críspa* Willd.

Other Varieties.

7. (m.) glàbra *Mill.* ‡ Eng. f. 1245. 1403
The smooth-*leaved, or Wych*, Elm.
U. *montàna β* Fl. Br.
U. *fòlio glàbro* Ger. Emac.
U. *campéstris var.* 3. With.
The feathered Elm.

Varieties ‡ - - 1404

A. *Timber Trees.*
1 vulgàris ‡
The common *smooth-leaved* Elm.
2 vegèta ‡
U. *montàna vegèta* Hort Soc. Gard.
U. *americàna* Masters.
The Huntingdon Elm, the Chichester Elm, the American Elm, ? the Scampston Elm.
3 var. ‡
The Scampston Elm.
4 màjor ‡
U. *glàbra màjor* Hort. Dur.
The Canterbury Seedling.
5 glandulòsa *Lindl.* ‡
6 latifòlia *Lindl.* ‡
7 microphýlla *H. S.* ‡
? U. *g. parvifòlia* Hort. Soc. Gard.

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B. *Ornamental or curious Trees.*
8 péndula ‡
U *campéstris péndula* Hort. Dur.
The Downton Elm.
9 variegàta *H. S.* ‡
10 ramulòsa *Booth.* ‡

8. álba *Kit.* ‡ Hungary - - 1405
The whitish-*leaved* Elm.

9. americàna *L.* ‡ North America pl. 241. fig. 1246. 1406
The American Elm.
The white Elm, Amer.
Canadian Elm, American white Elm.
Varieties ‡ - - 1406
1 rùbra *Ait.* ‡
2 álba *Ait.* ‡
U. *mollifòlia* Rœm. et Schult.
3 péndula *Pursh.* ‡
4 incìsa *H. S.* ‡ pl. 242.

10. (a.) fúlva *Michx.* ‡ North America fig. 1247. 1407
The tawny-*budded, or slippery*, Elm.
U. *rùbra* Michx.
Orme gras, Fr.
Red Elm, Red-wooded Elm, Moose Elm.

11. alàta *Michx.* ‡ Virginia f. 1248. 1408
The *Wahoo, or cork-winged*, Elm.
U. *pùmila* Walt.
Wahoo, Indians of N. America.

App. i. *Doubtful Sorts of U'lmus.* - 1409
U. pubéscens *Walt.*
U. fruticòsa *Willd.*
U. integrifòlia. Himalayas.
U. virgàta. Himalayas.
U. lancifòlia *Royle.* Himalayas.
U. eròsa *Royle.* Himalayas.
U. lævigàta *Royle.* Himalayas.
U. virgàta *Royle.* Himalayas.

II. PLA'NER*A* Gmel. ‡ 1372. 1409
THE PLANERA.
R*hámnus* Pall., Güldenst.
U'*lmus*, various authors, as to Plánera Richárd*i*.

1. Richárd*i* Michx. ‡ West of Asia pl. 243, 244. fig. 1249, 1250. 1409
Richard's Planera, *or Zelkoua Tree.*
P. crenàta Michx., Desf.
P. carpinifòlia Wats.
R*hámnus carpinifòlius* Pall.
R*hámnus* ulmoìdes Güldenst.
U'*lmus crenàta* Hort. Par.
U'*lmus parvifòlia* Willd.
U'*lmus campéstris* Walt.
U'*lmus polýgama* Richard.
U'*lmus nemoràlis* Ait.
U'*lmus fòliis crenàtis bàsi æquálibus frúctu ovoìdeo, non comprésso*, Poir.
Le Zelkoua, Orme de Sibérie, Fr.
Richard's Planere, Ger.

2. Gmèlin*i* Michx. ‡ N.Am. f. 1251. 1413
Gmelin's Planera.
P. u*lmifòlia* Michx.
P. aquática Willd.
Anonymus aquaticus arbor, *&c.*, Walt.

? *P.* Abelícea *Schultes Crete.* - - - 1413
The Abelicea of Clusius.

III. *CE'LTIS Tourn.* ‡ ‡ ☐ ✿
THE CELTIS, *or Nettle Tree.* 1372. 1413
L*òtus* of Lobel and other authors.
Micocoulier, Fr.
Züngelbaum, Ger.

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1. austràlis *L.* ‡ S. Europe f. 1252. 1414
The southern Celtis, *or European Nettle Tree.*
L*òtus árbor* Lob.
L*òtus sìve Céltis* Cam.
Lote Tree.
Micocoulier austral, Micocoulier de Provence, Fabrecoulier, Faubreguier des Provençaux, N. Du Ham.
Lotu, Ital.
Variety ‡ - - 1414
With variegated leaves, *Brotero.* ‡

2. (a.) caucásica *Willd.* ‡ Caucasus 1415
The Caucasian Celtis.

3. Tournefôrt*ii* Lam. ‡ ✿ Armenia pl. 245. 1416
Tournefort's Celtis.
C. *orientàlis mìnor, fòliis minóribus et crassióribus fráctu flàvo*, Tourn.
C. *orientàlis* Mill., not of L.
Micocoulier du Levant, Micocoulier d'Orient, Fr.
Morgenlandischer Züngelbaum, Ger.

4. (T.) sinénsis *Pers.* ‡ ✿ China 1416
The China Celtis.

5. Willdenov*iàna* Schultes. ‡ China 1416
Willdenow's Celtis.
C. *sinénsis* Willd.

6. occidentàlis *L.* ‡ North America pl. 246, 247. 1417
The Western Celtis, *or North American Nettle Tree.*
C. *fructu obscuro purpurascente*, Tourn.
C. *oblìqua* Mœnch.
Nettle Tree, Sugar Berry, Amer.
Bois inconnu, Illinois.
Micocoulier de Virginie, Fr.
Varieties ‡ - - 1417
2 cordàta *Willd.* ‡
3 scabriúscula *Willd.* ‡
C. *austràlis* Willd.
C. ? *o.* β *tenuifòlia* Pers.
C. *áspera* Lodd. Cat.
C. *orientàlis* Hort.

7. crassifòlia *Lam.* ‡ N.Am. f. 1254. 1418
The thick-leaved Celtis, *or Hackberry.*
C. *cordifòlia* L'Hérit.
C. *cordàta* Desfont.
Hagberry, Hoop Ash, Amer.
Micocoulier à Feuilles en Cœur, Fr.

8. lævigàta *Willd.* ✿ Louisiana - 1420
The glabrous-*leaved* Celtis.

9. pùmila *Ph.* ✿ Maryland - - 1420
The dwarf Celtis.

App. i. *Species of Céltis half-hardy, or not yet introduced.* - - 1420
C. orientàlis *L.* ♀ ☐ Himalayas fig. 1255
C. tetrándra *Roxb.* Himalayas.
C. alpìna *Royle.* Himalayas.
C. Inglès*ii* Royle. Himalayas.

Juglandàceæ. ‡ - 1420

I. *JU'GLANS L.* ‡ - 1420, 1421
THE WALNUT TREE.
Noyer, Fr.
Walnuss, Ger.

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1. règia *L.* 🌳 Persia pl. 248, 249, 250. fig. 257. 1423
The royal, *or common,* Walnut Tree.
Núx Jùglans Dod.
Núx Jùglans, seu règia vulgàris, Bauh.
Noyer commun, Fr.
Nosguier, Provence.
Gemeine Walnuss, Ger.
Varieties 🌳 - - 1423
2 máxima 🌳
Núx Jùglans frúctu máximo, Bauh.
Noix de Jauge, Bon Jard.
Bannut, Warwickshire.
3 ténera 🌳
The skin-*shelled, or titmouse,* Walnut.
Núx Jùglans frúcto ténero et frágile putámine Bauh.
Noyer à Coque tendre, Noyer Mésange, Bon Jard.
Noyer de Mars, in Dauphin.
4 serótina *Desf.* 🌳
The late-*vegetating* Walnut.
Núx Jùglans frúcto serótino Bauh.
Noyer tardif, Noyer de la Saint Jean, Bon Jard.
Noyer de Mai, in Dauphiné.
5 laciniàta 🌳
The *Fern-leaved* Walnut.
Núx Jùglans fòliis laciniàtis Reneaulm.
Jùglans heterophýlla Hort.
J. *filicifòlia* Lodd. Cat.
Other Varieties.
The Highflier.
The Yorkshire Walnut.
2. nìgra *L.* 🌳 North America pl. 251, 252. fig. 1260. 1435
The black *wooded* Walnut Tree.
The black-Walnut, the black Hickory Nut, N. America.
Noyer noir, Fr.
3. cinèrea *L.* 🌳 N. Am. p. 253. f. 1262. 1439
The grey-*branched* Walnut Tree, *or Butter-nut.*
J. *cathártica* N. Amer. Sylv.
J. *oblónga* Mill.
Oil-nut, White Walnut, Amer.
Noyer cendré, Fr.
Graue Walnuss, Ger.

II. CA`RYA *Nutt.* 🌳 - 1421. 1441
The Carya, *or Hickory Tree.*
Jùglans sp. L.
Hicòrius *Rafinesque.*
Hickory, Amer.
1. olivæfórmis *Nutt.* 🌳 North America fig. 1263. 1441
The olive-shaped Carya, *or Pacane-nut Hickory.*
Jùglans rùbra Gærtn.
Jùglans cylíndrica Lam.
Jùglans Pècan *Mühlenb.*
Jùglans angustifòlia Ait.
Jùglans olivæfórmis Michx.
Pecan-nut, Illinois Nut, Amer.
Pécanier, Pacanus, Noyer Pécanier, Fr.
2. amàra *Nutt.* 🌳 N. Amer. f. 1264. 1443
The bitter-*nut* Carya.
Jùglans amàra Michx.
Bitter-nut, White Hickory, Swamp Hickory, Amer.
3. aquática *Nutt.* 🌳 North America fig. 1265, 1266. 1444
The aquatic Carya, *or Water Bitter-nut Hickory.*
Jùglans aquática Michx.
4. tomentòsa *Nutt.* 🌳 N. Am. f. 1267. 1444
The tomentose Carya, *or Mocker-nut Hickory.*
Jùglans álba L.
C. *álba* Mill.
Jùglans tomentòsa Michx.
White-heart Hickory, Common Hickory, Amer.
Noyer dur, Illinois.
Variety 🌳 - - 1445
2 máxima *Swt. Hort. Brit.* 🌳
5. álba *Nutt.* 🌳 North America pl. 254. fig. 1269. 1446
The white-*nutted* Carya, *or Shell-bark Hickory.*
Jùglans álba Michx.
Jùglans álba ovàta Marsh.
Jùglans squamòsa Michx.
Jùglans compréssa Gærtn.
Shag-bark Hickory, Scaly-bark Hickory, Kisky Thomas Nut, Amer.
Noyer tendre, Illinois.
6. sulcàta *Nutt.* 🌳 N. Am. f. 1271. 1448
The furrowed-*fruited* Carya.
Jùglans laciniòsa Michx. Arb.
Jùglans mucronàta Michx. Fl. Bor. Amer.
Jùglans sulcàta Willd.
Thick Shell-bark Hickory, Springfield Nut, Gloucester Nut, Amer.
7. porcìna *Nutt.* 🌳 North America fig. 1272, 1273, 1274. 1449
The Pig-*nut* Carya.
Jùglans porcìna α obcordàta Michx. Arbr.
Jùglans porcìna var. with fruit round and somewhat rough, Michx. N. Amer. Syl.
Jùglans obcordàta Mühlenb.
Big-nut, Hog-nut, Broom Hickory.
Variety 🌳 - - 1449
2 glàbra 🌳 f. 1272. *b,* and 1274. *b.*
Jùglans porcìna β ficifórmis Michx. Arb.
Jùglans glàbra Mühl.
8. myristicæfórmis *Nutt.* 🌳 South Carolina fig. 1275. 1451
The Nutmeg-like-*fruited* Carya, *or Nutmeg Hickory.*
Jùglans myristicæfórmis Michx.
9. microcárpa *Nutt.* 🌳 N. America 1451
The small-fruited Carya.
10. integrifòlia *Spreng.* 🌳 - - 1451
The entire leaf (let) ed Caria, *or Hickory.*
Hicòrius *integrifolius* Rafinesque.
App. i. *Other kinds of Cárya.* - 1451
C. ambígua. North America.
Jùglans ambígua Michx.
C. pubéscens *Lk.*
C. rígida.
Jùglans rígida Lodd. Cat.

III. PTEROCA`RYA *Kunth.* 🌳
The Pterocarya. 1421. 1451
Jùglans sp. L.
1. caucásica *Kunth.* 🌳 Caucasus pl. 255. fig. 1276. 1452
The Caucasian Pterocarya.
Jùglans pterocárpa Michx.
Rhús obscùrum Bieb.
Jùglans fraxinifòlia Lamond MS.
Fráxinus lævigàta Hort. Par.

Salicàceæ. 🌳 🌿 🌿 ✱ ✱ 1453
I. *SA`LIX L.* 🌳 🌿 🌱 ✱ ✱ - - 1453
The Willow.

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Harab, Hebrew.
Itea, Gr.
Sàlix, Lat.
Saule, Fr.
Weide, *Felber*, Ger.
Salcio, Ital.
Sauze, Span.
Wide, Swed.
Wilge, Flem.
Withig, Anglo-Sax.
Willow, *Withy*, *Sallow*, *Osier*, Eng.
Saugh, Scotch.

Group i. *Purpùreæ* Koch, Borrer. 🌿 🌳 1490

Osier Willows, with one Stamen in a Flower.

1. purpùrea *L* 🌿 Britain fig. 1294., and fig. 1. in p. 1603. - - 1490
The purple Willow.
S. *purpùrea α* Koch Comm.
Varieties 🌿 - - 1490
1 🌿
S. *purpùrea* Smith, Willd.
2 🌿
S. *Lambertiana Smith, Willd.*
3 🌿
S. *Hèlix* Willd. En.
4 monadélphica *Koch.* 🌿
5 serícea *Koch.* 🌿
S. *monándra sericea* Ser. Sal. Helv.
6 bráctea rùbra *Koch.* 🌿

2. *H*èlix *L.* 🌿 🌳 Britain fig. 2. in p. 1603. - - - 1491
The Helix, *or Rose*, Willow.
S. *purpùrea var.* Koch Comm.
? S. *oppositifòlia* Host Sal. Austr.

3. Lambert*iàna* Sm. 🌿 England fig. 3. in p. 1603. - - - 1492
Lambert's, *or the Boyton*, Willow.
S. *purpùrea β* Koch Comm.

4. Woollgar*iàna* Borr. 🌿 England fig. 4. in p. 1603. - - - 1492
Woollgar's Willow.
S. *monándra* Sal. Wob.
S. *monándra var.* Hoffm. Hist. Sal.

5. Forby*àna* Sm. 🌿 England fig. 5. in p. 1603. - - - 1492
Forby's Willow, *or the fine Basket Osier.*
S. *fissa* Lin. Soc. Trans., not of Hoffm.
S. *rùbra β* Koch Comm.

6. rùbra *Huds.* 🌿 🌳 Britain fig. 6. in p. 1604. - - - 1493
The red, *or green-leaved*, Willow, *or Osier.*
S. *rùbra, in part*, Koch Comm.
S. *fissa* Hoffm. Sal
S. *cóncolor* Host Sal.
S. *viréscens* Vill. Dauph.
S. *lineàris* Walker's Essays.

App. i. *Purpùreæ of which Plants have been introduced, but not described.* 1493

S. ellíptica *Lodd. Cat.*

App. ii. *Purpùreæ described by Authors, but not yet introduced, or of doubtful Identity with Species already in the Country.* 1493

S. cóncolor, mas. et fem., *Host Sal.*
S. *mínima frágilis foliis longíssimis, &c.*, Ray.
S. *rùbra* Engl. Fl.
S. *H*èlix, mas et fem., *Host Sal.*
S. oppositifòlia, mas et fem., *Host Sal.*
S. *Hèlix* L.
S. purpùrea, mas et fem., *Host Sal.*
S. mutábilis, mas et fem., *Host Sal.*
S. carnióIica, mas et fem., *Host Sal.*
S. mirábilis, mas, *Host Sal.*

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Group ii. *Acutifòliæ* Borrer. 🌿 🌳 1494
Pruinòsæ *Koch.*

Willows with dark Bark, covered with a fine Bloom.

7. acutifòlia *Willd.* 🌿 🌳 Podolia fig. 25. in p. 1607. - - 1494
The pointed-leaved Willow.
S. *violàcea* Andr. Bot. Rep., not of Willd. nor S. cáspica Hort.

8. *d*aphnöìdes *Villars.* 🌳 Switzerland fig. 1295., and fig. 26. in p. 1608. 1494
The Daphne-like Willow.
S. *præ̀cox* Hoppe.
S. *bigémmis* Hoffm.
S. *cinèrea* Host Sal.

9. pomeránica *Willd.* 🌳 Pomerania 1496
The Pomeranian Willow.
S. d*aphnöìdes var.* Villars.

Group iii. *Triándræ* Borrer. 🌿 🌳 1496
Amygdálinæ *Koch.*

Osier Willows, with three Stamens in a Flower.

10. undulàta *Koch, Hook.* 🌳 🌿 England fig. 1296., and fig. 13, 14. in p. 1605. 1497
The wavy-*leaved* Willow.
S. undulàta Ehrh. Beytr.
? S. *No.* 38., Trev. Obs. Bot.
S. *lanceolàta* Sm.
Varieties 🌳 🌿 - - 1497
2 undulàta *Forbes.* 🌳 🌿
3 lanceolàta *Smith.* 🌳 🌿
4 Having the catkins androgynous 🌳 🌿

11. *h*ippophäefòlia *Thuillier.* 🌿 Silesia, &c. 1498
The Sea-Buckthorn-leaved Willow, *or Osier.*
S. *undulàta* Trev. Obs. Bot.
? S. *undulàta var.* Borr. in a letter.

12. triándra *L.* 🌿 🌳 Britain fig. 1297., and fig. 15. in p. 1605. - - 1498
The three stamened-*flowered* Willow, *or Osier.*
S. a*mygdálina, part of*, Koch Comm.
Varieties. 🌿 🌳
? 2 The French willow 🌿 🌳 1499
S. *triándra* Curt. Fl. Lond.
? S. *Hoppe*àna *Willd.*
? 3 Hoppe*àna* 🌿 🌳 - - 1500
S. *andrógyna* Hoppe.
S. *Hoppeàna Willd. Sp. Pl.*
S. *triándra andrógyna* Seringe.
S. a*mygdálina, part of*, Koch Comm.
? 4 🌿 🌳
S. *triándra undulàta* Mertens.

13. Hoffmann*iàna* Sm. 🌿 Britain fig. 16. in p. 1606. - - - 1500
Hoffmann's Willow, *or Osier.*
S. *triándra* Hoffm.

14. *a*mygdálina *L.* 🌳 Britain fig. 1298., and fig. 18. in p. 1606. - 1500
The Almond-*leaved* Willow, *or Osier.*
S. a*mygdálina, part of*, Koch Comm.

15. Villars*iàna* Flügge et Willd. 🌳 Dauphiné fig. 17. in p. 1606. - 1502
Villar's Willow, *or Osier.*
S. *triándra* Villars Delph.
S. a*mygdálina var.* Koch Comm.

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App. i. *Triándræ of which there are Plants in the Country not described.* 1502

S. tenuifòlia *Lodd. Cat.* and *G.* not of Sm.

App. ii. *Triándræ described, but not yet introduced, or of doubtful Identity with Species in the Country.* - - - 1502

S. spectábilis, mas et fem., *Host Sal.*
S. semperflòrens, mas et fem., *Host Sal.*
S. tenuiflòra, mas et fem., *Host Sal.*
S. venústa, mas et fem., *Host Sal.*
S. vària, mas et fem., *Host Sal.*
S. amygdálina, mas et fem., *Host Sal.*
S. ligústrina, mas et fem., *Host Sal.*
S. speciòsa, mas et fem., *Host Sal.*

Group iv. *Pentándræ* Borrer. ☨ 1503

Trees, having Flowers with 3—5 Stamens.

16. pentándra *L.* ☨ Britain fig. 1299.*a*, and fig. 34. in p. 1610. - 1503
The five-stamened-*flowered* Willow.
S. *pentándra, part of*, Koch Comm.
The sweet Willow, Bay-leaved Willow.
Variety ☨ - - 1503
2 hermaphrodítica ☨
S. *hermaphrodítica* L.

17. Meyer*iàna* Willd. ☨ Pomerania f. 1300., and f. 33. in p.1610. 1504
Meyer's Willow.
S. *cuspidàta* Schultz.
S. *tinctòria* Sm. in Rees's Cycl.
S. *pentándra β* L.
S. *hexándra* Ehrh.
S. *Ehrhart*iàna *Sm. in Rees's Cycl.*
S. *tetrándra* Willd.

18. lùcida *Mühlenb.* ☨ North America f. 1301., and f. 32. in p. 1610. 1504
The shining-*leaved* Willow.
S. *Forbèsii Swt. Hort. Brit.*

Group v. *Frágiles* Borrer. ☨ 1507

Trees, with their Twigs mostly brittle at the Joints.

19. babylónica *L.* ☨ Asia pl. 256. fig. 22. in p. 1607. - - 1507
The Babylonian, *or Weeping*, Willow.
S. *propéndens* Sering. Sal. Helv.
S. *orientàlis, &c.*, Tourn.
S. *arábica, &c.*, C. Bauh.
Saule pleureur, Parasol du grand Seigneur, Fr.
Trauer Weide, Thränen Weide, Ger.
Varieties ☨ - - 1513
1 vulgàris fem. *Hort.* ☨
2 Napoleòn*a* Hort. ☨
3 críspa *Hort.* ☨ pl. 257. fig. 21. in p. 1606.

20. decípiens *Hoffm.* ☨ Britain pl. 258. f. 1309., and f. 29. in p. 1609. 1515
The deceptive, *White Welch, or varnished*, Willow.
S. *americàna* Walker's Essays.
S. *frágilis, part of*, Koch Comm.

21. montàna *Forbes* ☨ Switzerland fig. 19. in p. 1606. - - 1515
The Mountain Willow.

22. frágilis *L.* ☨ Britain fig. 1310., and fig. 27. in p. 1606. - - 1516
The brittle-*twigged, or Crack*, Willow.
S. *frágilis, in part*, Koch Comm.

23. monspeliénsis *Forbes.* ☨ ♣ Montpelier fig. 30. in p. 1609. - 1517
The Montpelier Willow.
? S. *frágilis var.* Borr. in a letter.

24. Russell*iàna* Sm. ☨ Britain fig. 1311., and fig. 28. in p. 1608. - 1517
The Russell, *or Duke of Bedford's*, Willow.
? S. *frágilis* Woodv.
The Dishley or Leicestershire, Willow ; the Huntingdon Willow.
S. *péndula* Ser. Sal. Helv.
S. *víridis* Fries Nov.
S. *rùbens* Schrank Baier. Fl.
Varieties - - - 1521

25. Purshi*àna* Borrer. ☨ N. Amer. 1522
Pursh's Willow.
S. *ambígua* Pursh, Sm., Forbes, Hook.

App. i. *Frágiles introduced, but not yet described, or of doubtful Identity.* 1522

S. adscéndens *Donald's Nursery.*
S. bigémmis *Lodd. Cat.*
S. decípiens, fem., *Lodd. Cat.*
S. frágilis *Lodd. Cat.*
S. murìna *Lodd. Cat.*
S. rùbra *G. Lodd.*

App. ii. *Frágiles described, but not yet introduced, or of doubtful Identity with introduced Species.* - - 1522

S. frágilis, mas et fem., *Host Sal.*
S. fragilior, mas et fem., *Host Sal.*
S. fragilíssima, mas et fem., *Host Sal.*
S. *frágilis* Host Syn.
S. palústris, mas et fem., *Host Sal.*
S. capénsis *Thunb. Fl. Cap.*
S. subserràta *Willd. Sp. Pl.*
S. Safsaf bæ'lledi Forsk. Cat. Pl. Ægypt.

Group vi. *A'lbæ* Borrer. ☨ 1522

Trees of the largest Size, with the Aspect of the Foliage whitish.

26. álba *L.* ☨ Europe pl. 259, 260. f. 1314, 1315., and f. 136. in p. 1629. 1522
The *whitish-leaved, or common* white, Willow.
S. *álba, part of*, Koch Comm.
The Huntingdon, or Swallow-tailed, Willow.
Varieties ☨ - - 1523
2 cærùlea ☨ fig. 137. in p. 1629.
Blue Willow.
S. *álba var.* Sm. Fl. Br.
S. *cærùlea* Sm. Eng. Bot.
S. *álba β* Sm. Eng. Fl.
The upland, or red-twigged, Willow, Pontey.
The Leicester Willow, Davy's Agr. Chem.
? 3 críspa ☨ - - 1525
4 ròsea *Lodd. Cat.* ☨

27. vitellìna *L.* ☨ Britain pl. 261. fig. 20. in p. 1606. - - - 1528
The yolk-of-egg-coloured, *or yellow*, Willow, *or Golden Osier.*
S. *álba* Koch Comm.
Variety ☨ - - 1528
With reddish branchlets, *Sm* ☨

Page
App. i. *A'lbæ described, but which, probably, have not been introduced into Britain.* 1528
S. excélsior *Host Sal.*

Group vii. *Nìgræ.* ⚘ ‡ - 1529

Extra-European Kinds allied to the Kinds of one or all of the three preceding Groups.

28. nìgra *Mühlenb.* ‡ N. America fig. 152. in p. 1630. - - - 1529
The black, *or dark-branched American,* Willow.
S. *caroliniàna* Michx.
S. *pentándra* Walt.
S. *vulgàris* Clayt. Fl. Virg.

29. Humboldt*iàna* Willd. ⚘ Peru fig. 8. in p.1604. - - 1529
Humboldt's Willow.

30. Bonpland*iàna* Humb. et Bonpl. ⚘ ? ‡ Mexico fig. 9. in p. 1604. - 1529
Bonpland's Willow.

App. i. *Nìgræ described, but not yet introduced.* - - 1530
S. ligústrina Michx. North America.
S. occidentàlis *Bosc.* Isle of Cuba.
S. octándra *Sieb.* Egypt.

Group viii. *Prinöìdes* Borrer. ⚘ ‡ 1530

Shrubs, mostly Natives of North America, and used in Basket-making.

31. rígida *Mühlenb.* ⚘ North America fig. 141. in p. 1630. - - 1530
The stiff-*leaved* Willow.
S. *cordàta* Michx.
S. *cordifòlia* Herbs. Banks. MSS.

32. prinöìdes *Pursh.* ⚘ ‡ North America f. 1317., and f. 40. in p. 1612. 1530
The Prinos-like Willow.

33. díscolor *Mühlenb.* ⚘ North America fig. 147. in p. 1630. - - 1530
The two-coloured Willow.

34. angustàta *Pursh.* ⚘ N. America 1531
The narrowed, *or tapered-leaved,* Willow.

35. confórmis *Forbes.* ⚘ North America fig. 24. in p. 1607. - - 1531
The uniform-*leaved* Willow.

Group ix. *Gríseæ* Borrer. ‡ ⚘ ⁂ ✱ ✱ 1531

Chiefly Shrubs, Natives of North America.

36. viréscens *Forbes.* ⚘ Switzerland f. 1318., and f. 7. in p. 1604. 1531
The greenish-*leaved* Willow, *or verdant Osier.*
S. *hippophacfòlia* Lodd.

37. refléxa *Forbes.* ⚘ North America fig. 94. in p. 1619. - - 1532
The reflexed-*catkined* Willow.

38. virgàta *Forbes.* ⁂ North America fig. 12. in p. 1605. - - 1532
The twiggy Willow.

39. Lyòn*ii* ? Schl. ⚘ Switzerland fig. 10. in p. 1604. - - - 1532
Lyon's Willow.

40. Houston*iàna* Pursh. ⚘ Virginia and Carolina fig. 11. in p. 1604. 1532
Houston's Willow.
S. *trístis* Lodd. Cat.

41. falcàta *Pursh.* ⚘ N. America fig. 148. in p. 1630. - - - 1533
The Sickle-*leaved* Willow.

42. grísea *Willd.* ⚘ Pennsylvania - 1533
The grey Willow.
S. serícea Mühlenb.
? S. *pennsylvánica* Forbes.
Variety ⚘ - - 1533
2 glàbra ⚘

43. petiolàris *Sm.* ⚘ Scotland fig. 1319., and fig. 23. in p. 1607. - 1533
The *long*-petiolated Willow.
S. *grísea* Willd.
S. *grísea var. β subglabràta* Koch Comm.

44. pennsylvánica *Forbes.* ⚘ ? N. America fig. 95. in p. 1620. - - 1534
The Pennsylvanian Willow.
? S. *petiolàris* Sm.
? S. *grísea* Willd.
? S. *pedicellàris* Spreng. Syst., Pursh.

45. Mühlenberg*iàna* Willd. ✱ Pennsylvania fig 145. in p. 1630. - - 1534
Mühlenberg's, *or the brown American,* Willow.
S. *alpìna* Walt.
S. *incàna* Michx.
S. *flàva* Schoepf.
S. *trístis* Mühlenb.

46. trístis *Ait.* ✱ North America fig. 150. in p. 1630. - - 1534
The sad, *or narrow-leaved American,* Willow.

47. cordàta *Mühlenb.* ⚘ North America fig. 142. in p. 1630. - - 1534
The heart-*leaved* Willow.

Group x. *Rosmarinifòliæ* Borrer. 1535
⚘ ⁂ ✱

Low Shrubs, with narrow Leaves.

48. rosmarinifòlia *L.* ⁂ North America f. 1320., and f. 87. in p. 1618. 1535
The Rosemary-leaved Willow.
S. *rosmarinifòlia, part of,* Koch Comm.

49. angustifòlia *Borrer, Hook.,* ? *Wulf.* ⁂ ✱ Scotland fig. 1321., and fig. 86. in p. 1618. - - - 1535
The narrow-leaved Willow.
S. *arbúscula* Sm.
S. *rosmarinifòlia α* Koch Comm.
S. *incubàcea* L.

50. decúmbens *Forbes.* ✱ ? Switzerland fig. 88. in p. 1618. - - 1536
The decumbent Willow.

51. fuscàta *Pursh.* ⚘ North America 1536
The *dark*-brown-*branched* Willow.

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Group xi. *Fúscæ* Borrer. ⚘ ⁂ ✱ 1536
Mostly procumbent Shrubs.

52. fúsca *L.* ✱ fig. 83. in p. 1618. 1536
The brown Willow.
S. *rèpens* Hook.
S. *rèpens* Koch, *part of*, Koch Comm.

Varieties ⁂ ✱ - - 1537
1 vulgàris ⁂ Britain fig. 83. in p. 1618.
var. α Hook.
S. *fúsca* Sm.
S. *rèpens* Koch β Koch Comm.
2 rèpens ✱ Britain fig. 84. in p. 1618.
var. β Hook.
S. *rèpens* L.
S. *rèpens* Koch α Koch Comm.
3 prostràta ✱ Britain fig. 82. in p. 1618.
var. γ Hook.
S. *prostràta* Sm.
4 fœ′tida ✱
var. δ Hook.
S. *fœ′tida* Sm.

? Subvarieties ✱
S. adscéndens *Sm. Eng. Bot.* ✱ Britain. fig 80. in p. 1618.
S. *fœ′tida, exclusive of* β, Sm. Eng. Fl.
S. *rèpens* Koch *var.* Koch Comm.
S. parvifòlia *Sm. Eng. Bot.* ✱ Britain. fig. 81. in p. 1618.
S. *fœ′tida* β Sm. Eng. Fl.
S. *rèpens* Koch *var.* Koch Comm.
5 incubàcea ⚘ England fig. 79. in p. 1618.
S. *incubàcea* L.
6 argéntea ✱ England fig. 78. in p. 1618.
S. *argéntea* Sm.
S. *rèpens* Koch γ Koch Comm.

53. Doni*àna* Sm. ⚘ Britain fig. 1322., and fig. 85. in p. 1618. - 1540
Don's, *or the rusty-branched*, Willow.

Group xii. *Ambíguæ* Borrer. ‡ ⚘ ⁂ ✱ 1540
Shrubs.

54. ambígua *Ehrh. Borrer.* ⚘ ✱ Engl. 1540
The ambiguous Willow.
S. *ambígua* Koch, *part of*, Koch Comm.

Varieties ⚘ ⁂ ✱ - 1541
1 vulgaris ⁂ ✱
var. a, Borrer in Eng. Bot. Suppl.
2 màjor ⚘
β *màjor* Borrer.
S. *ambígua* β Hook.
S. *versifòlia* Sering.
Saule de la Suisse.
3 spathulàta ⚘
var. γ *spathulàta* Borrer.
S. *ambígua* γ Hook.
S. *spathulàta* Willd.
4 undulàta ⚘
var. δ *undulàta* Borr.
S. *spathulàta* Willd., *var. undulata* of Professor Mertens.

55. finmárchica *Willd.* ? ⁂ ? ✱ Finmark 1541
The Finmark Willow.

56. versícolor *Forbes.* ? ✱ ? ⁂ Switzerland fig. 77. in p. 1618. - 1541
The various-coloured Willow.

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57. *a*laternöìdes *Forbes.* ⚘ Switzerland fig. 76. in p. 1618. - - 1542
The Alaternus-like Willow.

58. prote*æfòlia* Schl. ⚘ ? ‡ Switzerland fig. 75. in p. 1617. - - 1542
The Protea-leaved Willow.

Group xiii. *Reticulàtæ* Borrer. ✱ 1542

59. reticulàta *L.* ✱ England fig. 1323., and fig. 67. in p. 1616. - 1542
The netted, *or wrinkled, leaved* Willow.

App. i. *Reticulàtæ described, but not yet introduced.* - - 1543
S. vestìta *Pursh.* Labrador.

Group xiv. *Glaúcæ* Borrer. ‡ ⚘ ⁂ ✱ 1543
Small, upright, with soft silky Leaves.

60. *e*læagnöìdes *Schleicher.* ⚘ Europe fig. 69. in p. 1616. - - 1544
The Elæagnus-like Willow.
S. *elæagnifòlia* Forbes.
S. *glaúca var.* Koch.

61. glaúca *L.* ⁂ Scotland fig. 1324., and fig. 68. in p. 1616. - - 1544
The glaucous *Mountain* Willow.
S. *appendiculàta* Fl. Dan.

62. serícea *Villars.* ✱ Switzerland fig. 74. in p. 1617. - - 1544
The silky Willow.
S. *glaúca* Koch Comm.
S. *Lappònum* Sm.

63. Lappònum *L.* ⁂ Lapland fig. 1325., and fig. 73. in p. 1617. - 1545
The Laplanders' Willow.
S. *arenària* Fl. Dan.

64. obtusifòlia *Willd.* ⚘ ‡ Lapland 1545
The blunt-leaved Willow.

65. arenària *L.* ⚘ Scotland fig. 70. in p. 1617. - - - 1545
The sand Willow.
S. *limòsa* Wahlenb.
Variety ⚘ - - 1546
? leucophýlla ⚘
S. *leucophýlla* Schl.

66. obovàta *Pursh.* ✱ Labrador fig. 144. in p. 1630. - - - 1546
The obovate-*leaved, or Labrador,* Willow.

67. canéscens *Willd.* ? ⁂ ? ⚘ ? Germany 1546
The greyish Willow.
S. *limòsa* Wahlenb. *var.* Koch Comm.

68. Stuart*iàna* Sm. ⚘ Scotland fig. 72. in p. 1617. - - - 1546
Stuart's, *or the small-leaved shaggy,* Willow.
S. *arenària masculìna* Sm.
S. *Lappònum* Walker.
S. *limòsa* Wahlenb. *var. fòliis augustioribus lanceolàtis* Koch Comm.
Variety - - - 1547

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69. pyrenàica *Gouan.* ✶ Pyrenees 1547
The Pyrenean Willow.
Variety ✶ - - 1547
2 ciliàta *Dec.* ✶
S. *pyrenàica β ciliàta* Dec.

70. Waldstein*iàna* Willd. ✽ Alps - 1547
Waldstein's Willow.

Group xv. *Viminàles* Borrer. ✽ ☨ 1547

Willows and Osiers.—Mostly Trees, or large Shrubs, with long pliant Branches, used for Basket-making.

71. subalpìna *Forbes.* ✽ Switzerland fig. 93. in p. 1619 - - 1547
The subalpine Willow.

72. cándida *Willd.* ✽ North America f. 1326., and f. 91. in p. 1619. 1548
The whitish Willow.
Varieties - - - 1548

73. incàna *Schranck.* ✽ ? ☨ Pyrenees, &c. f. 1327., and f. 90. in p. 1619. 1548
The hoary-*leaved* Willow, *? or Osier.*
S. *ripària* Willd., &c.
S. *lavandulæfòlia* Lapeyr., &c.
S. *angustifòlia* Poir., &c.
S. *rosmarinifòlia* Gouan, &c.
S. *viminàlis* Vill.

74. lineàris *Forbes.* ✽ Switzerland f. 1328., and f. 89. in p. 1619. 1549
The linear-*leaved* Willow.
? S. *incàna var. lineàris* Borrer.

75. viminàlis *L.* ✽ ☨ England fig. 1329., and fig. 133. in p. 1629. - 1549
The twiggy Willow, *or common Osier.*
S. *longifòlia* Lam.
Varieties - - 1550
Bark of the branchlets brownish yellow.
Bark of the branchlets dark brown. Velvet Osier.

76. stipulàris *Sm.* ✽ ☨ England fig. 132. in p. 1628. - - 1550
The stipuled, *or auricled-leaved, Osier, or* Willow.

77. Smith*iàna* Willd. ☨ England fig. 134. in p. 1629. - - - 1550
Smith's Willow, *or the silky-leaved Osier.*
S. *mollíssima* Sm.
S. *acuminàta, with narrower leaves,* Koch Comm.
S. *acuminàta β* Lindl. Synops.

78. mollíssima *Ehrh.* ☨ Germany 1551
The softest-*surfaced* Willow, *or Osier.*
S. *pùbera* Koch.

79. holoserícea *Hook.*, ? *Willd.* ✽ ☨ Germany - - - 1551
The velvety, *or "soft-shaggy-flowered,"* Willow, *or Osier.*
S. *Smith*iàna *rugòsa* Forbes.
? S. *acuminàta, the var.* mentioned by Sm. in Eng. Fl.
S. *acuminàta var. rugòsa* Sm. MSS.
? S. *rùbra* Walker's Essays.

80. Michel*iàna* Forbes. ✽ ? ☨ fig. 135. in p. 1629. - - 1552
Michel's Willow.
S. *holoserícea* Willd.
? S. *holoserícea var.* Borrer.

81. ferrugínea *Anderson.* ☨ Scotland fig. 128. in p. 1627. - 1552
The ferruginous-*leaved Sallow, or* Willow.

82. acuminàta *Sm.* ☨ England fig. 1330., and fig. 131. in p. 1628. - 1553
The acuminated-*leaved, or large-leaved, Sallow, or* Willow.
S. *lanceolàta* Seringe.

App. i. *Viminàles in the Country, but not described.* - - 1553
S. trichocárpa.

Group xvi. *Cinèreæ* Borrer. ✽ ☨ 1553

Sallows.—Trees and Shrubs, with roundish shaggy Leaves, and thick Catkins.

83. pállida *Forbes.* ✽ Switzerland fig. 96. in p. 1620. - - 1555
The pale Willow.

84. Willdenov*iàna* Forbes. ✽ fig. 41. in p. 1613. - - 1555
Willdenow's Willow.

85. Pontederà*na* Willd. ✽ Switzerland f. 1331., and f. 43. in p. 1613. 1555
Pontedera's Willow.
S. *pùmila alpìna nìgricans, fòlio oleágino serràto* Ponted. Comp.
S. *Pontedèræ Bellardi.*

86. macrostipulàcea *Forbes.* ☨ Switzerland fig. 130. in p. 1627 - 1557
The large-stipuled *Sallow.*

87. incanéscens ? *Schl.* ✽ ☨ Switzerland fig. 120. in p. 1625. - 1557
The whitish-*leaved Sallow.*

88. pannòsa *Forbes.* ✽ ☨ Switzerland fig. 123. in p. 1626. - - 1557
The cloth-*leaved Sallow.*
? *Variety* - - 1558
Leaf, catkin, ovary, and bractea larger.

89. mutábilis *Forbes.* ✽ Switzerland 1558
The changeable Willow, *or Sallow.*

90. cinèrea *L.* ☨ England fig. 1332., and fig. 125. in p. 1626. - 1558
The *grey Sallow, or* Ash-coloured Willow.
S. *cinèrea var.* Koch Comm.
Varieties ☨ - - 1559
1 With variegated leaves ☨
2 ☨
S. *cinèrea* Sm., according to Koch.
3 ☨
S. *aquática* Sm. according to Koch.
4 ☨
S. *oleifòlia* Sm., according to Koch.

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91. aquática *Sm.* ♆ England fig. 127. in p. 1627. - - - 1559
The Water *Sallow*, or Willow.
S. *cinèrea var.* Koch Comm.

92. oleifòlia *Sm.* ♆ England fig. 126. in p. 1626. - - - 1559
The Olive-leaved Willow, *or Sallow.*
S. *cinèrea var.* Koch Comm.

93. geminàta *Forbes.* ♆ ? Britain fig. 129. in p. 1627. - - 1560
The twin-*catkin Sallow, or* Willow.

94. críspa *Forbes.* ⚘ fig. 42. in. p. 1613. 1560
The crisp-*leaved* Willow.

95. aurìta *L.* ⚘ England fig. 124. in p. 1626. - - - 1560
The *round*-eared, *or trailing Sallow, or* Willow.
S. *uliginòsa* Willd.
The trailing Sallow, Norfolk.
Varieties ⚘ - - 1560
S. cladostémma *Hayne, according to Koch.* ⚘
microphýlla *Lodd.* ⚘
S. càprea pùmila, folio subrotundo, subtus incano, *Dill.*, according to Smith. ⚘

96. latifòlia *Forbes.* ⚘ fig. 118. in p. 1625. 1561
The broad-leaved Willow, *or Sallow.*

97. càprea *L.* ♆ Britain fig. 1333, 1334, 1335., and fig. 122. in p. 1626. 1561
The Goat-Willow, *or the great round-leaved Sallow.*

98. sphacelàta *Sm.* ⚘ Britain fig. 121. in p. 1625. - - 1563
The withered *pointed-leaved* Willow, *or Sallow.*

Group xvii. *Nigricántes* Borrer. ♆ ⚘ ✱ 1563
Shrubs, with long Branches, or small Trees. Mostly Sallows.

99. austràlis *Forbes.* ⚘ Switzerland fig. 103. in p. 1621. - - 1565
The southern *Sallow, or* Willow.

100. vaudénsis *Forbes.* ⚘ Switzerland fig. 117. in p. 1624. - - 1565
The Vaudois *Sallow, or* Willow.

101. grisophýlla *Forbes.* ⚘ Switzerland fig. 119. in p. 1625. - 1565
The grey-leaved Willow, *or Sallow.*

102. lacústris *Forbes.* ⚘ Switzerland fig. 116. in p. 1624. - - 1566
The Lake Willow, *or Sallow.*

103. crassifòlia *Forbes.* ⚘ fig. 115. in p. 1624. - - - 1566
The thick-leaved Willow, *or Sallow.*

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104. cotinifòlia *Sm.* ⚘ Britain fig. 1336., and fig. 114. in p. 1624. - 1566
The Cotinus, *or Quince*, leaved *Sallow, or* Willow.
S. *spadícea* Vill.
S. *phylicifòlia var.* Koch Comm.

105. hírta *Sm.* ⚘ ♆ Britain fig. 113. in p. 1623. - - - 1567
The hairy-*branched Sallow, or* Willow.
S. *pícta* Schl. is the fem. of S. hírta *Forbes.*

106. rivulàris *Forbes.* ⚘ Switzerland fig. 102. in p. 1621. - 1567
The River Willow, *or Sallow.*

107. atropurpùrea *Forbes.* ♆ Switzerland 1567
The dark-purple-*branched* Willow, *or Sallow.*

108. coriàcea *Forbes.* ⚘ Switzerland fig. 112. in p. 1623. - 1568
The coriaceous-*leaved, or* leathery, Willow, *or Sallow.*

109. nígricans *Sm.* ⚘ Britain. fig. 37. in p. 1611. - - - 1568
The dark *broad-leaved* Willow.
S. *phyllicifòlia β* L.

110. Anderson*iàna* Sm. ⚘ Scotland fig. 109. in p. 1623. - 1568
Anderson's Willow, *or the green Mountain Sallow.*
S. *phylicifòlia var.* Koch.
Varieties - - - 1569

111. *d*amascèna *Forbes.* ⚘ - 1569
The Damson-*leaved* Willow, *or Sallow.*
S. d*amascenifòlia* Anderson MSS.
S. p*hylicifòlia* L., a state of, Lindl. Syn.

112. Anson*iàna* Forbes. ⚘ Switzerland fig. 107. in p. 1622. - - 1569
Anson's *Sallow, or* Willow.

113. helvética *Forbes.* ⚘ Switzerland 1570
The Swiss Willow, *or Sallow.*

114. fírma *Forbes.* ⚘ fig. 106. in p. 1622. 1570
The firm-*leaved Sallow, or* Willow.

115. *c*arpinifòlia *Schl.* ⚘ Germany 1570
The Hornbeam-leaved *Sallow, or* Willow.

116. rotundàta *Forbes.* ⚘ ♆ Switzerland fig. 1337. in p. 1572., and fig. 104. in p. 1621. - - 1571
The round-*leaved* Willow, *or Sallow.*
? S. *rotundifòlia* Host.

117. dùra *Forbes.* ♆ fig. 105. in p. 1622 1571
The hardy *Sallow, or* Willow.

118. Forster*iàna* Sm. ⚘ ♆ Britain fig. 110. in p. 1623. - - 1571
The *glaucous Mountain Sallow, or* Forster's Willow.
S. *phylicifòlia var.* Koch.

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119. rupéstris *Donn.* ✱ Scotland fig. 111. in p. 1623. - - 1573
The *silky* Rock Willow, *or Sallow.*

120. tenuifòlia *L.* ⚘ England fig. 50. in p. 1614. - . - 1573
The thin-leaved Willow.
S. *arbúscula* Wahlenb. *var.* Koch.
S. t. *of Eng. Bot.* is S. *bicolor* of Hook.
? *Variety* - - - 1573
With silky hairs on the upper half of the ovary, and towards the base of its stalk.

121. propínqua *Borr.* ⚘ ☨ Britain 1574
The nearly related, *or flat-leaved, upright, Mountain* Willow.

122. petræ'a *Anders.* ⚘ Britain fig. 97. in p. 1620. - - 1574
The Rock-*Sallow, or* Willow.
S. *arbúscula* Wahlenb.

123. Ammanni*àna* Willd. ☨ Alps 1575
Ammann's Willow.

124. atrovìrens *Forbes.* ⚘ Switzerland fig. 108. in p. 1622. - 1575
The dark-green *Sallow, or* Willow.

125. strépida *Forbes.* ⚘ Switzerland fig. 100. in p. 1621. - 1575
The creaking Willow, *or Sallow.*

126. sórdida *Forbes.* ⚘ Switzerland fig. 101. in p. 1621. - - 1576
The sordid *Sallow, or* Willow.

127. Schleicher*iàna* Forbes. ⚘ Switzerland fig. 98. in p. 1620. - 1576
Schleicher's Willow, *or Sallow.*

128. grisonénsis *Forbes.* ⚘ Grisons fig. 99. in p. 1620. - - 1576
The Grisons *Sallow, or* Willow.

Group xviii. *Bicolòres* Borrer. ☨ ⚘ ⸙ ✱ 1577
Bushy Shrubs, with Leaves dark green above, and glaucous beneath.

129. tenùior *Borrer.* ⚘ Scotland 1577
The narrower-*leaved intermediate* Willow.
S. *laúrina* Sm., according to Sm.
S. *bícolor* Sm. Eng. Bot., according to Sm.

130. laxiflòra *Borrer.* ⚘ Britain 1578
The loose-catkined Willow.

131. *la*úrina *Sm.* ☨ Britain fig. 1338., and fig. 38. in p. 1612. - 1578
The Laurel-*leaved, or shining dark green,* Willow.
S. *bícolor* Sm.
S. *arbúscula* Wahlenb. *var.* Koch Comm.

132. pàtens *Forbes.* ⚘ fig. 39. in p. 1612. 1578
The spreading-*branched* Willow.

133. radìcans *Sm.* ✱ Britain fig. 46. in p. 1614. - - - 1579
The rooting-*branched* Willow.
S. p*hylicifòlia* Lin. Fl. Lap.
S. *arbúscula* Wahlenb. *var.* Koch Comm.

134. Borrer*iàna* Sm. ⚘ Scotland fig. 1339. 1579
Borrer's, *or the dark upright,* Willow.

135. Davall*iàna* Sm. ⚘ Scotland fig. 47. in p. 1614. - - 1580
Davall's Willow.
S. *tétrapla* Walker.
S. p*hylicifòlia* Willd.
S. t*hymelæöìdes* Schl.
Variety ⚘ - - 1580
S. Davall*iàna* Sm., the Swiss kind. ⚘

136. tétrapla *Sm.* ⚘ Scotland fig. 49. in p. 1614. - - - 1580
The four-ranked Willow.

137. ramifúsca *Forbes.* ⚘ Britain fig. 53. in p. 1615. - - 1581
The brown-branched Willow.
? S. *tétrapla mas* Borrer.

138. Forbes*iàna* ⚘ f. 51. in p. 1615. 1581
Forbes's Willow.
S. *Weigel*iàna *Forbes.*

139. Weigel*iàna* Borr. ⚘ Scotland f. 1340., and f. 48. in p. 1614. - 1582
Weigel's Willow.
S. *Wulfen*iàna *Sm.*
Variety - - 1582
Leaves more conspicuously toothed, rather silky when young; the shoots more downy, and the ovary pubescent towards the point only. (*Borr.*)

140. nìtens *Anders.* ⚘ Britain fig. 1341., and fig. 44. in p. 1613. - 1582
The glittering-*leaved* Willow.

141. Crowe*àna* Sm. ⚘ Scotland fig. 52. in p. 1615. - - 1583
Crowe's Willow.
S. *arbúscula* Wahlenb. *var.* Koch Comm.
S. *húmilis* Schl., *fem.* of *S.* Croweàna Sm.
? S. *heterophýlla* Host.

142. bícolor *Ehrh.* ⚘ Britain fig. 54. in p. 1615. - - - 1583
The two-coloured Willow.
S. *tenuifòlia* Sm.
S. *floribúnda* Forbes.
S. *lívida* Wahlenb.

143. phillyreifòlia *Borr.* ⚘ Scotland 1584
The Phillyrea-leaved Willow.

144. Dickson*iàna* Sm. ⸙ Scotland fig. 55. in p. 1615. - - 1584
Dickson's Willow.
S. *myrtilloìdes* Sm., not of L.

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Group xix. *Vacciniifòliæ* Borr. ✿ ⁕ ✶ 1585
Small, and generally procumbent, Shrubs.

145. vacciniifòlia *Walker.* ✶ Scotland f. 1342., and f. 57. in p. 1615. 1585
The Vaccinium-leaved Willow.
S. *prunifolia, part of,* Koch Comm.

146. carinàta *Sm.* ✿ Scotland fig. 59. in p. 1615. - - - 1585
The keeled, *or folded-leaved,* Willow.
S. *prunifòlia, part of,* Koch Comm.

147. *prunifòlia Sm.* ⁕ Scotland fig. 1615. 1585
The Plum-leaved Willow.
S. *Myrsinìtes* Lightf., not of L.
S. *prunifòlia, part of,* Koch Comm.
Variety ⁕ - - 1586
stỳlo longiòre *Koch.* ⁕
S. *prunifòlia* Ser.
S. *formòsa* Willd.
S. *fœ́tida* Schl.
S. *alpìna* Sut.

148. venulòsa *Sm.* ✿ Scotland fig. 56. in p. 1615. - - - 1586
The veiny-*leaved* Willow.
S. *prunifòlia, part of,* Koch Comm.

149. cæ̀sia *Villars.* ✿ Dauphiné fig. 66. in p. 1616. - - 1586
The grey-*leaved* Willow.
S. *myrtillöìdes* Willd.
S. *prostràta* Ehrh.

Group xx. *Myrtillöìdes* Borrer. ⁕ 1587
Small Bilberry-like Shrubs, not Natives of Britain.

150. myrtillöìdes *L.* ⁕ Poland, &c. f. 1343. 1587
The Myrtillus-like, *or Bilberry-leaved* Willow.
S. *élegans* Besser.

151. pedicellàris *Pursh.* ⁕ Catskill Mountains - - - 1587
The *long*-stalked-*capsuled* Willow.

152. planifòlia *Pursh.* ⁕ Labrador 1587
The flat-leaved *Labrador* Willow.

Group xxi. *Myrsinìtes* Borrer. ⁕ ✶ 1587
Small bushy Shrubs.

153. *Myrsinìtes L.* ⁕ Scotland fig. 1344. 1588
The Whortleberry-*leaved* Willow.
S. *Myrsinìtes β* Sm.
S. *arbutifòlia* Willd.
? S. *Macnabiàna Macgillivray.*
S. *Myrsinìtes* Koch, *part of,* Koch Comm.
S. *dùbia* Suter.

154. *betulifòlia Forster.* ⁕ Britain f. 1345., and f. 60. in p. 1615. - 1588
The *dwarf* Birch-leaved Willow.
S. *Myrsinìtes* Sm. Koch, *part of,* Koch Comm.

155. procúmbens *Forbes.* ✶ Scotland fig. 61. in p. 1615. - 1588
The procumbent Willow.
S. *læ̀vis* Hook.
S. *retùsa* Wither.

156. retùsa *L.* ✶ Alps fig. 1346., and fig. 139. in p. 1630. - 1589
The retuse-*leaved* Willow.
S. *retùsa* Koch, *part of,* Koch Comm.
S. *serpyllifòlia* Jacq.
? *Varieties* - - - 1589
? *S.* Kitaibel*iàna* Scop.
? *S.* Ùva-úrsi *Scop.*
? *S.* serpyllifòlia *Scop.*

157. Kitaibel*iàna* Willd. ✶ Carpathian Mountains f. 64. in p. 1616. 1589
Kitaibel's Willow.
S. *retùsa* Koch, *β màjor* Koch Comm.
? S. *Ùva-úrsi* Pursh.
? S. *retùsa var.* L.

158. Ùva-úrsi *Pursh.* ⁕ Labrador fig. 151. in p. 1630. - - 1590
The Bearberry-*leaved* Willow.
? S. *Kitaibel*iàna *Willd.*
? S. *retùsa var.* L.

159. serpyllifòlia *Scop.* ✶ France, &c. fig. 1347, 1348., and fig. 65. in p. 1616. - - - 1590
The Wild-Thyme-leaved Willow.
S. *retùsa* Koch, *γ* Koch Comm.
S. *retùsa var.* L.

160. cordifòlia *Pursh.* ✶ Labrador fig. 143. in p. 1630. - - - 1590
The heart-leaved *Labrador* Willow.

Group xxii. *Herbàceæ* Borrer. ⁕ 1590
Very low Shrubs, scarcely rising an Inch above the Ground.

161. herbàcea *L.* ⁕ Britain fig. 1349., and fig. 62. in p. 1615. - 1590
The herbaceous-*looking* Willow.
? *Varieties* - - - 1591

162. polàris *Wahlenb.* ⁕ Lapland f. 1350, 1351., and f. 63. in p. 1615. 1591
The Polar Willow.

Group xxiii. *Hastàtæ* Borrer. ✿ ⁕ ✶ 1592
Low Shrubs, with very broad Leaves, and exceedingly shaggy and silky Catkins.

163. hastàta *L.* ✿ Lapland fig. 1352., and fig. 35. in p. 1611. - 1592
The halberd-*leaved* Willow.
S. *hastàta* Koch, *part of.*
Varieties ✿ - - 1592
2 serrulàta ✿
S. *hastàta* Willd.
3 *m*alifòlia ✿
S. m*alifòlia* Sm.
S. *hastàta, part of;* Koch.
S. *hastàta* Hook., Borr.
4 arbúscula ✿ ? ⁕ fig. 1353., and fig. 138. in p. 1630.
S. *arbúscula* Wahl.
S. *arbúscula β* Lin. Fl. Suec.
S. *arbúscula γ* Lin. Sp. Pl.

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164. lanàta *L.* ♣ Lapland fig. 1354., and fig. 71. No. 2. in p. 1617 - 1593
The woolly-*leaved* Willow.
S. *lanàta, the kind* No. 2., Forbes.
S. *lanàta, at least part of,* Koch Comm.
? S. *càprea* Fl. Dan., t. 245
? S. *chrysánthos* Fl. Dan., t. 1057.
Varieties, according to Koch ♣ ⚹ - - 1594
2 glabréscens ♣
S. *chrysánthos* Vahl Fl. Dan.
3 glandulòsa *Wahlenb.* Fl. Lapp. ♣
4 depolìta *Koch.* ? ⚹
S. *deprèssa* Lin. Fl. Suec.

Group xxiv. *Miscellàneæ* A. ‡ ♣ ⁂ ⚹ 1594
Kinds of Sàlix described in Sal. Wob., *and not included in any of the preceding Groups.*

165. ægyptìaca *L.* ‡ Egypt fig. 146. in p. 1630. - - - 1594
The Egyptian Willow.
Calaf and *Ban,* Alpin. Ægypt.

166. alpìna ?*Forbes.* ? ‡ ? ♣ ? ⁂ fig. 149. in p. 1630. - - - 1595
The alpine Willow.

167. *berberifòlia Pall.* ⚹ Dauria fig. 1355., and fig. 140. in p. 1630. - 1595
The Berberry-leaved Willow.

168. tetraspérma *Roxb.* ‡ India fig. 31. in p. 1609. - - - 1595
The four-seeded Willow.

169. *ulmifòlia Forbes.* ‡ Switzerland 1595
The Elm-leaved Willow, *or Sallow.*

170. villòsa *Forbes.* ⁂ Switzerland fig. 92. in p. 1619. - - - 1595
The villous-*leaved* Willow.

Group xxv. *Miscellàneæ* B. ‡ ♣ ⁂ ⚹ 1596
Kinds of Sàlix introduced, and of many of which there are Plants at Messrs. Loddiges's, but which we have not been able to refer to any of the preceding Groups.

171. albéscens *Schl.* ♣ Switzerland 1596
The whitish-*leaved* Willow.
S. *stylòsa* κ Dec.

172. *alnifòlia Host.* ♣ - - 1596
The Alder-leaved Willow.

173. Ammanniàna Willd. ‡ Salzburg 1596
Ammann's Willow.
S. *Myrsinìtes* Hoffm.
S. *hastàta* Hopp., not of L.

174. angustàta *Pursh.* ‡ New York 1596
The tapered-*leaved American* Willow.

175. angustifòlia *Willd.* ♣ Near the Caspian Sea - - - 1596
The narrow-leaved *Caspian* Willow.

176. *betùlina Host.* ? ♣ - - 1596
The Birch-like Willow.

177. candídula *Host.* ? ♣ - - 1596
The whitish Willow.

178. canéscens *Lodd.* ? ♣ - - 1596
The hoary Willow.

179. cerasifòlia *Schl.* ♣ - - 1597
The Cherry-leaved Willow.

180. chrysánthos *Œd.* ♣ Finmark 1597
The golden-flowered *Norway* Willow.
? S. *lanàta var.*

181. cinnamòmea *Schl.* ♣ Switzerland 1597
The Cinnamon Willow.

182. clethræfòlia *Schl.* ♣ Switzerland 1597
The Clethra-leaved Willow.

183. conífera *Wangenh.* ♣ N. Amer. 1597
The cone-bearing Willow.
S. *longiróstris* Michx.

184. corùscans *Will'd.* ♣ Styria - 1597
The glittering Willow.
S. *arbúscula* Jacq., ? Wahlenb.

185. cydoniæfòlia *Schl.* ⁂ Switzerland 1597
The Quince-leaved Willow.

186. dùbia *Hort.* ⁂ - - - 1597
The doubtful Willow.

187. eriántha *Schl.* ⁂ Switzerland 1597
The woolly-flowered Willow.

188. *fagifòlia W. et K.* ⁂ Croatian Alps 1597
The Beech-leaved Willow.

189. finmárchica *Lodd. Cat.* ‡ Sweden 1598
The Finmark Willow.

190. foliolòsa *Afzel.* ⁂ Lapland - 1598
The many-leaved Willow.
? S. *foliòsa* Loud. Hort. Brit.
S. *alpìna myrtifòlia* Rudb.
S. *arbúscula* β L.

191. formòsa *Willd.* ♣ Swiss Alps 1598
The elegant Willow.
S. *glaùca* Willd.
? S. *alpìna* Scop.

192. fuscàta *Pursh.* ⁂ New York - 1598
The brown-*stemmed* Willow.

193. glabràta *Schl.* ♣ Switzerland - 1598
The glabrous Willow.

194. heterophýlla *Deb.* ♣ Europe 1598
The various-leaved Willow.

195. hùmilis *Dec.* ⁂ - - 1598
The humble Willow.

196. Jacquínii Host. ⚹ Alps - 1598
Jacquin's Willow.
S. *fúsca* Jacq.
S. *alpìna* Scop.
S. Jacquiniàna Willd.

197. lìvida *Wahlenb.* ♣ - - 1598
The livid-*leaved* Willow.
S. *arbúscula* γ Lin. Fl. Suec.
? S. *arbúscula* β Lin. Sp. Pl.
S. *Starkeàna Willd.*
? S. *foliolòsa* Afzel.
S. *malifòlia* Bess.
S. *bícolor* Ehrh.
S. *lívida* Hook.

198. longifòlia *Mühlenb.* ⁂ Banks of the Susquehanna - - - 1599
The long-leaved Willow.

199. *mespilifòlia Schl.* ♣ Switzerland 1599
The Mespilus-leaved Willow.

200. murìna *Schl.* ♣ Switzerland - 1599
The Mouse Willow.

201. *myricöìdes Mühlenb.* ♣ N. Am. 1599
The Myrica-like Willow.

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202. nervòsa *Schl.* ✻ Switzerland - 1599
The nerved-*leaved* Willow.

203. obtùsa *Link.* ✻ Switzerland - 1599
The blunt-*leaved* Willow.

204. obtusifòlia *Willd.* ✻ Lapland 1599
The obtuse-leaved Lapland Willow.
S. *fòliis oblóngis, &c.*, Lin. Fl. Lapp.
S. *càprea β* Lin. Sp. Pl.
S. O'*lea sylvéstris, &c.*, Rudd.

205. obtùsi-serràtis *Schl.* ✻ Switzerland 1599
The obtusely-serrated-*leaved* Willow.

206. pallèscens *Schl.* ✻ Switzerland 1599
The pale Willow.

207. paludòsa *Link.* ✻ - - 1600
The Marsh Willow.

208. persicæfòlia *Hort.* ✻ - - 1600
The Peach-tree-leaved Willow.

209. pyrenàica *Gouan.* ✶ Pyrenees 1600
The Pyrenean Willow.

210. pyrifòlia *Schl.* ✻ Switzerland 1600
The Pear-tree-leaved Willow.

211. recurvàta *Pursh.* ✻ N. America. 1600
The recurved-*catkined* Willow.

212. salviæfòlia *Lk.* ✻ Portugal - 1600
The Sage-leaved Willow.
S. *pátula* Seringe Sal. Helv.
S. *oleifòlia* Ser. Sal. exsicc.
S. *oleæfòlia* Vill.
S. *Fluggeàna Willd.*

213. Schrader*iàna* Willd. ⁂ - - 1600
Schrader's Willow.
S. *díscolor* Schrad.

214. septentrionàlis *Host.* ✻ - - 1600
The northern Willow.

215. silesìaca *Willd.* ✻ Sweden, &c. 1601
The Silesian Willow.

216. Starke*àna* Willd. ✻ Silesia - 1601
Starke's *Sallow, or the Marsh Silesian* Willow.

217. tetrándra *Host.* ✻ - - 1601
The four-stamened Willow.

218. *t*hymelæöìdes *Host.* ⁂ - - 1601
The Wild-Olive-like Willow.

219. Trevir*àna* Lk. ✻ - - 1601
Treviranus's Willow.

220. velutìna *Willd.* ✻ - - 1601
The velvet Willow.

221. versifòlia *Spreng.* ⁂ - - 1601
The twining-leaved Willow.

222. *v*acciniöìdes *Host.* ⁂ - - 1601
The Vaccinium-like Willow.

223. Waldstein*iàna* Willd. ✻ Croatian Alps 1601
Waldstein's Willow.
S. *alpéstris* Host.

224. Wulfen*iàna* Willd. ✻ Carinthia 1601
Wulfen's Willow.
S. *hastàta var.* Koch Comm.
? S. *phylicæfòlia* Wulf.

App. i. *Kinds of Sàlix described or recorded in Botanical Works, but not introduced into Britain, or not known by these Names in British Gardens.* - - 1602

S. árctica *R. Br.* ✻ North America.
S. desertòrum *Rich.* ✻
S. rostràta *Rich.* ✻
S. cineráscens *Link MSS.* ✻ Portugal.
The ash-coloured *Portuguese* Willow.
? S. *grandifòlia* Ser.
S. grandifòlia *Ser. Sal. Helv.* ✻
S. *stipulàris* Ser. Sal. exsicc.
? S. *cineráscens* Link.
S. divaricàta *Pall.* ✶ Dauria.
S. hirsùta *Thunb.* ✻ Cape of Good Hope.
S. pedicellàta *Desf.* ? ✝ Barbary.
The stalked *Barbary* Sallow.
S. íntegra *Thunb.* ✻ Japan.
The entire-*leaved Japan* Willow.
S. japónica *Thunb.* ✝ Japan.
Rju, vulgo Aujaki, Kæmpfer.
S. mucronàta *Thunb.* ✻ Cape of Good, Hope.
S. rhamnifòlia *Pall.* ✶ Siberia.
S. *pùmila, fòliis ovàlibus, &c.*, Gmel.
S. Seringe*àna* Gaudin in Ser. Sal. Helv. ✻ Switzerland.
S. *lanceolàta* Ser. Sal. exsicc., No. 70.
S. *Kanderi*àna *Ser. Sal. exsicc.*, No. 42.
S. *longifòlia* Schl. Cat.
S. serótina *Pall.* ✻ ✝ Wolga.
S. *càprea γ* Lin. Sp. Pl.
S. *ægyptìaca* Willd.
S. *Gmelini*àna *Willd. Sp. Pl.*

App. ii. *Kinds of* Sàlix *figured or described in the* Salictum Woburnense. - 1631

App. iii. *Koch's Arrangement of the Species of Sàlix indigenous to Europe; including, also, some extra-European Species, with references to the pages in this work, where each species is described.* - - 1633

App. iv. *Kinds of Sàlix described in Host's* Flora Austriaca, *and figured in Host's* Salix. - - - - 1635

II. *PO'PULUS Tourn.* ✝ 1454. 1636
THE POPLAR.
Peuplier, Fr.
Pappel, Ger.
Pioppo, Ital.
Poplier, Dutch.
Alamo, Span.

1. álba *L.* ✝ Europe pl. 262. f. 1507. 1638
The white Poplar, *or Abele Tree.*
P. *álba latifòlia* Lob.
P*ópulus* No. 1634. Hall. Hist.
P. *màjor* Mill.
P. *nívea* Willd.
P. *álba nívea* Mart.
Leukē Dioscorides.
The great white Poplar, great Aspen, Dutch Beech.
Peuplier blanc, Ypréau blanc de Hollande, Franc Picard, Fr.; *Aubo, or Aoubero*, in some Provinces.
Weisse Pappel, Silber Pappel, Weisse Aspe, Weissalber Baum, Ger.
Abeelboom, Dutch.
Varieties - - 1639

2. (a.) canéscens *Sm.* ✝ Britain pl. 268. fig. 1508. 1639
The grey, *or common white*, Poplar.
P. *álba* Mill.
P. *álba fòliis minóribus* Ray.
P. *álba fòlio minòre* Bauh.
P. No. 1634 *β* Hall. Hist.
Peuplier grisaille, Fr.
Varieties ✝ - - 1640
2 hýbrida *Bieb. Fl. Tour.*
P. *álba* Bieb. l. c.
? P. *intermèdia* Mertens.
P. *a. crassifòlia* Mertens.
P. *grísea* Lodd. Cat.

Page
3 acerifòlia ‡
P. *acerifòlia* Lodd. Cat.
P. *quercifòlia* Hort.
P. *palmàta* Hort.
4 arembérgica ‡
P. *arembérgica* Lodd. Cat.
5 bélgica ‡
P. *bélgica* Lodd. Cat.
6 cándicans ‡
P. *cándicans* Lodd. Cat.
7 nívea ‡
P. *nívea* Lodd. Cat.
8 ægyptìaca *Hort.* ‡
P. *a. pállida* Hort.
Other Varieties.
9 péndula. ‡
P. *a. var. grácilis ràmis pendéntibus* Mertens.

3. trémula *L.* ‡ Europe pl. 264. fig. 1509. 1645
The trembling-*leaved* Poplar, *or Aspen.*
P. No. 1633. Hall. Hist.
P. *líbyca* Ray.
P. *hýbrida* Dod.
P. *nìgra* Trag.
P. *péndula* Du Roi.
Le Tremble, Fr.
La Tremola, Alberalla, Alberetto, Ital.
Zitter Pappel, Espe, Ger.
Varieties ‡ - - 1509
1 montícola ‡
P. *montícola* Mertens.
? P. *trémula* L.
2 parvifòlia *Mertens.* ‡
3 grandifòlia *Mertens.* ‡
4 rotundifòlia màjor *Mertens.* ‡
5 mìnor *Mertens.* ‡
6 oxyodónta ‡
P. *oxyodónta* Mertens.
7 strícta ‡
P. *strícta* Mertens.
8 péndula ‡ pl. 265.
P. *péndula* Lodd. Cat.
9 supìna ‡
S. *supìna* Lodd. Cat.
10 lævigàta ‡
P. *lævigàta* Ait.

4. (t.) trépida *Willd.* ‡ North America fig. 1510. 1649
The *North American* trembling-*leaved* Poplar, *or American Aspen.*
P. *tremulöìdes* Michx.

5. (t.) grandidentàta *Michx.* ‡ Canada 1651
The large-toothed-*leaved* Poplar, *or North American large Aspen.*
Variety ‡ - - 1651
2 péndula *Michx.* ‡

6. græ̀ca *Ait.* ‡ Greece pl. 266. fig. 1512. 1651
The Grecian, *or Athenian*, Poplar.

7. nìgra *L.* ‡ Europe pl. 267, 268, 269. fig. 1513, 1514. 1652
The black-*barked, or common black*, Poplar.
P. No. 1632. Hall. Hist.
P. *álba* Trag.
P. *vimìnea* Du Ham.
Aigeiros, Greek.
Kabaki, Modern Greek.
The old English Poplar, Suffolk.
The Willow Poplar, Cambridgeshire.
Water Poplar.
Cotton Tree, fem. of *P.* nìgra so called at Bury St. Edmunds.
Peuplier noir, Peuplier liard, Osier blanc, Fr.
Schwarze Pappel, Ger.
Varieties ‡ - - 1652
2 víridis *Lindl.* ‡
P. *víridis* Lodd. Cat.
3 salicifòlia ‡
P. *salicifòlia* Lodd. Cat.

8. (n.) canadénsis *Michx.* ‡ N. America fig. 1515. 1655
The Canadian Poplar.
P. *lævigàta* Willd., not of Hort. Kew.
P. *monilífera* Hort. Par.
Cotton Wood, Michx.
Peuplier de Canada, Fr.

9. (n.) betulifòlia *Pursh.* ‡ Banks of the Hudson - fig. 1516. 1656
The Birch-leaved Poplar.
P. *nìgra* Michx. Fl.
P. *hudsónica* Michx. Arb.
P. *hudsoniàna* Bosc.
American Black Poplar, Amer.
Peuplier de la Baie d'Hudson, Fr.

10. monilífera *Ait.* ‡ ? Canada pl. 270, 271, 272. fig. 1517. 1657
The Necklace-bearing, *or black Italian*, Poplar.
P. *virginiàna* L.
P. *glandulòsa* Mœnch Meth.
P. *carolinénsis* Mœnch Weissenst.
P. *nìgra itálica* Lodd. Cat.
P. *nìgra americàna* Lodd. Cat.
P. *acladésca* Lindl.
? P. *marylándica* Bosc.
Virginian Poplar, Swiss Poplar, Canadian, or Berry-bearing, Poplar, Mill.
Peuplier Suisse, Peuplier triphilon, Peuplier de Virginie, Dumont.
Varieties ‡ - - 1657
2 Lindleyàna Booth. ‡
The new waved-leaved Poplar, Hort.
3 fòliis variegàtis *Hort.* ‡

11. fastigiàta ‡ Italy pl. 273. fig. 1519, 1520. 1660
The fastigiate, *or Lombardy*, Poplar.
P. *dilatàta* Ait.
P. *nìgra itálica* Du Roi.
P. *itálica* Mœnch Weissenst.
P. *itálica dilatàta* Willd.
P. *pyramidàta* Hort.
P. *pannónica* Jacq.
P. *itálica var. carolinénsis* Burgsdorf.
Cypress Poplar, Turin Poplar, Po Poplar, Peuplier d'Italie, Peuplier pyramidal, Fr.
Lombardische Pappel, Italianische Pappel, Ger.
Pioppo Cypresso, Ital.

12. angulàta *Ait.* ‡ North America pl. 274, 275. fig. 1533. 1670
The angled-*branched, or Carolina*, Poplar.
P. *angulòsa* Michx.
P. *heterophýlla* Du Roi.
P. *macrophýlla* Lodd. Cat.
P. *balsamífera* Mill.
Mississippi Cotton Tree, Amer.
Varieties ‡ - - 1671
2 nòva *Audibert.* ‡
3 Medùsæ Booth. ‡

Page
13. heterophýlla *L.* 🌳 N. Am. f. 1534. 1672
The various-*shaped*-leaved Poplar Tree.
P. *mágna, foliis amplis, aliis cordiformibus, aliis subrotundis, primoribus tomentosis,* Gron.
P. *cordifòlia* Burgsdorf.
P. *argéntea* Michx.
Cotton Tree, Michx. N. A. S.

14. balsamífera *L.* 🌳 North America pl. 276. fig. 1535, 1536. 1673
The balsam-bearing Poplar, *or Tacamahac Tree.*
P. Tacamahàca *Mill.*
The Tacamahac, Amer.
Le Baumier, Fr.
Peuplier liard, Tacamahac, in Canada.
Balsam Pappel, Ger.
Varieties 🌳 - - 1673
2 viminàlis 🌳 Altai.
P. *viminàlis* Lodd. Cat.
P. *salicifòlia* Hort.
P. *longifòlia* Fischer.
3 latifòlia *Hort.* 🌳
4 intermèdia *Hort.* 🌳 Dahuria
5 suaveòlens 🌳
P. *suaveòlens* Fischer, and Lodd. Cat.
6 fòliis variegàtis *Mill.* 🌳

15. cándicans *Ait.* 🌳 North America pl. 277. fig. 1557. 1676
The whitish-*leaved balsam-bearing, or Ontario,* Poplar.
P. *macrophýlla* Lindl.
P. *latifòlia* Mœnch Meth.
P. *ontariénsis* Desf.
P. *cordàta* Lodd. Cat.
P. *canadénsis* Mœnch Weissenst., not of Michx.
Balm of Gilead Tree, Boston.
Peuplier liard, Canada.
Peuplier à Feuilles vernissées, Fr.

Betulàceæ. 🌳 🌿 - 1677

I. *A'*LNUS *Tourn.* 🌳 🌿 - - 1677
The Alder.
Bétulæ Species L.
Aune, Fr.
Erle, Ger.
Ontano, Ital.
Aliso, Span.

1. glutinòsa *Gærtn.* 🌳 Europe pl. 278. fig. 1538. 1678
The glutinous, *or common,* Alder.
Bétulus A'lnus L.
Bétula emarginàta Ehrh.
A'lnus Ray.
Aune, Fr.
Gemeine Else, Elser, Schwartz Erle, Ger.
Eisenboom, Dutch.
Alno, Ontano, Ital.
Aliso, Alamo nigro, Span.
Varieties 🌳 - - 1678
2 emarginàta *Willd.* 🌳
3 laciniàta *Willd.* 🌳
A. *g. incìsa* Hort. fig. 1538.
4 quercifòlia *Willd.* 🌳
5 oxyacanthæfòlia 🌳 fig. 1539.
A. *oxyacanthæfòlia* Lodd. Cat.
6 macrocárpa 🌳
A. *macrocárpa* Lodd. Cat.
7 fòliis variegàtis *Hort.* 🌳
Other Varieties.

2. (g.) oblongàta *Willd.* 🌿 🌳 Hungary 1687
The oblong-*leaved* Alder.
A'lnus fòl. oblong., &c., Bauh.
A. *fòl. ovàto-lanceol., &c.,* Mill.
Langliche Else, Ger.
Variety 🌿 🌳 - - 1687
2 fòliis ellípticis *Ait.* 🌿 🌳
A. *pùmila* Lodd. Cat.

3. incàna *Willd.* 🌳 N. Am. f. 1543. 1687
The hoary-*leaved* Alder.
Bétula A'lnus var. incàna L. Sp. Pl.
Bétula incàna L. Supp.
A. *fòlio incàno, &c.,* Bauh.
Bétula víridis Vill.
Weisse Erle, Graue Else, Weisse Eller, Ger.
Varieties 🌳 - - 1688
2 laciniàta *Lodd. Cat.* 🌳
3 glaúca 🌳
A. *glaúca* Michx.
Bétula incàna var. glaúca Ait.
Black Alder, Amer.
4 angulàta *Ait.* 🌳
Other Varieties.
? 1.
A. *americàna* Lodd. Cat.
? 2.
A. *canadénsis* Lodd. Cat.
? 3.
A. *rùbra* Lodd. Cat.

4. serrulàta *Willd.* 🌿 North America fig. 1544. 1688
The saw-*leaved* Alder.
Bétula serrulàta Ait.
Bétula rugòsa Ehrh.
? A. *americàna* Lodd. Cat.
? A. *canadénsis* Lodd. Cat.
Common Alder, Amer.
Hazel-leaved Alder.

5. undulàta *Willd.* 🌿 Canada - 1689
The waved-*leaved* Alder.
Bétula críspa Ait.
Bétula A'lnus var. críspa Michx.
A. *críspa* Pursh.

6. cordifòlia *Lodd.* 🌳 Calabria pl. 281. fig. 1545. 1689
The heart-leaved Alder.
A. *cordàta* Tenore.

7. víridis *Dec.* 🌿 Hungary f. 1546. 168
The green-*leaved* Alder.
A. *ovàta* Lodd. Bot. Cab.
A. *fruticòsa* Schmidt.
Bétula ovàta Schrank.
Bétula A'lno-Bétulæ Ehrh.
Bétula víridis Hort.

App. i. *Other Species of A'lnus.* 1690
A. obtusifòlia *Royle.* Banks of the Jumna.
A. elongàta *Royle.* Cashmere.
A. nepalénsis *Royle.* Nepal.

II. *BE'*TULA *Tourn.* 🌿 🌳 - 1690
The Birch.
Bouleau, Fr.
Betula, Ital.
Abedul, Span.
Betulla, Port.
Birke, Ger.
Berk, Dutch.
Birk, Danish and Scotch.
Biörk, Bork, Swedish.
Bercsa, Russian.
Brzoza, Polish.

Page
Leaves small. Natives chiefly of Europe.
1. álba *L.* ‡ Europe f. 1547. 1550. 1691
The white, *or common*, Birch.
B. *pubéscens* Ehrh.
Bétula Ray.
B. *ætnénsis* Rafin.
Bouleau commun, Fr.
Gemeine Birke, Gr.
Varieties ‡ - - 1691
2 péndula *Sm.* ‡ pl. 282.
The weeping Birch.
B. *péndula* Roth.
B. *verrucòsa* Ehrh.
B. *péndulis virgulis* Loes.
3 pubéscens ‡ fig. 1548.
B. *pubéscens* Ehrh.
4 póntica ‡ fig. 1549.
B. *póntica* Lodd. Cat.
5 *u*rticifòlia ‡
B. u*rticifòlia* Lodd. Cat.
6 dalecárlica *L. Supp.* ‡
7 macrocárpa *Willd.* ‡
8 fòliis variegàtis *Dumont.* ‡
Other Varieties.

2. daùrica *Pall.* ✿ ‡ Dauria f. 1556. 1704
The Daurian Birch.
B. *excélsa canadénsis* Wang.
Bouleau de Sibérie, Fr.
Variety ✿ ‡ - - 1705
2 parvifòlia ✿ ‡

3. fruticòsa *Pall.* ✿ Eastern Siberia, &c. fig. 1557. 1705
The shrubby Birch.
B. *hùmilis* Schrank.
B. *quebeccénsis* Schrift. der Ges. Naturf.

4. pùmila *L.* ✿ Canada fig. 1558. 1705
The *hairy* dwarf Birch.
B. *nàna* Kalm.

5 nàna *L.* ✿ Lapland, &c. f. 1559. 1705
The dwarf Birch.
B. *nàna Succòrum* Bromel.
B. No. 259. Amm. Ruth.
B. *palústris pùmila, &c.*, Cels.
Variety ✿ - - 1706
2 strícta *Lodd. Cat.* ✿

6. glandulòsa *Michx.* ✿ Canada - 1707
The glandular-*branched* Birch.

Leaves large. Natives of North America.

7. (a.) populifòlia *Ait.* ‡ North America pl. 283. fig. 1560. 1707
The Poplar-leaved Birch.
B. *acuminàta* Ehrh.
B. *lénta* Du Roi.
White Birch and Oldfield Birch, Amer.
Varieties ‡ - - 1707
2 laciniàta ‡
B. *laciniàta* Lodd. Cat.
3 péndula ‡
B. *péndula* Lodd. Cat.

8. papyràcea *Ait.* ‡ North America pl. 284. fig. 1561. 1708
The Paper Birch.
B. *papyrífera* Michx.
B. *lanceolàta* Hort.
B. *rùbra* Lodd. Cat.
B. *canadénsis* Lodd. Cat.
B. *nìgra* of the Paris Nurseries.
Canoe Birch, White Birch, Amer.

Page
Varieties ‡ - - 1708
2 fúsca ‡ Carolina.
B. fúsca Bosc.
3 trichóclada *Hort.* ‡
4 platyphýlla *Hort.* ‡

9. nìgra *L.* ‡ North America pl. 285, 286. fig. 1562, 1563. 1710
The black Birch.
B. *lanulòsa* Michx. Fl.
? B. *rùbra* Michx. Arb.
B. *angulàta* Lodd. Cat.
Red Birch, Amer.

10. excélsa *H. Kew.* ‡ North America fig. 1564, 1565. 1711
The tall Birch.
B. *lùtea* Michx.
? B. *nìgra* Du Roi.
Yellow Birch, Amer.

11. lénta *L.* ‡ N. Amer. f. 1566. 1713
The pliant Birch.
B. *carpinifòlia* Ehrh.
B. *nìgra* Du Roi.
Black Birch, Cherry Birch, Canada Birch, Sweet Birch, Mountain Mahogany, Amer.
Bouleau Mérisier, Fr.

App. i. *Species of Birch not yet introduced.* 1714

B. Bhojpúttra Wall. Kamaon.
B. acuminàta *Wall.* Nepal.
B. nitida. Kamaon.
B. cylindrostàchya. Kamaon.
B. resinífera. Kunawar.

Corylàceæ, or Cupulíferæ. 1715
‡ † ✿ ⚘ ⁂

I. QUE'RCUS *L.* ‡ † ✿ ⚘ ⁂ 1715. 1717
THE OAK.
I'*lex* Tourn.
S*ù*ber Tourn.
Derw, Celtic.
Aaack, Ac, Saxon.
Al, Alon, Allun, Hebrew.
Drus, Greek.
Chêne, Fr.
Eiche, Ger.
Eik, Dutch.
Quercia, Ital.
Encina, Span.

A. *Leaves deciduous.*

§ i. Ròbur. *British Oaks.* ‡ 1730, 1731

1. pedunculàta *Willd.* ‡ Britain pl. 287, 288, 289. fig. 1567. 1581, 1582. - - 1731. 1740
The *common, or* peduncled, *British* Oak.
Q. Ròbur L.
Q. R. *pedunculàtum* Mart.
Q. *fœ'mina* Roth.
Q. *racemòsa* N. Du Ham.
Q. *cum longo pendunculo* Bauh.
Q. H*émeris* Dalech.
Qu*ércus* Fuchs.
Q. *navàlis* Burnet.
Chêne blanc, Secondat.
Chêne à Grappes, Chêne femelle, Gravelin, Fr.
Stiel Eiche, früh Eiche, Thal Eiche, Lohe Eiche, Wald Eiche, Ger.

Page
Varieties ‡ - - 1731
2 pubéscens *Lodd. Cat.* ‡
3 fastigiàta ‡ pl. 290.
Q. *fastigiàta* Lam. Dict.
Q. *pyramidàlis* Hort.
Chêne Cyprès, Chêne des Pyrénées, Fr.
4 péndula ‡ fig. 1568.
The weeping Oak.
Q. *péndula* Lodd. Cat.
5 heterophýlla ‡ fig. 1560. 1570.
Q. *salicifòlia* Hort.
Q. *laciniàta* Lodd. Cat.
Q. *filicifòlia* Hort.
Q. *Fennéssi Hort.*
6 fòliis variegàtis *Lodd. Cat.* ‡
7 purpùrea ‡
Q. *purpùrea* Lodd. Cat.
8 Hodgínsii Lodd. Cat. ‡
9 dúlcis. ‡
Chêne à Feuilles caduques, presque sessiles, Dralet.
Other Varieties.

2. sessiliflòra *Sal.* ‡ Britain pl. 291, 292, 293. fig. 1572, 1585, 1586 - 1736
The sessile-flowered Oak.
Q. *Ròbur* Willd.
Q. R. *var. séssile* Mart.
Q. *séssilis* Ehrh.
Q. *platyphýllos, mas et fœm.*, Dalech.
Q. *latifòlia mas, &c.*, Bauh.
Q. *regàlis* Burnet.
Chêne male, Secondat.
Chestnut Oak, Bay Oak.
Chêne roure or rouvre, Durelin, Fr.
Steine Eiche, Gemeine Eiche, Spät Eiche, Winter Eiche, Durr Eiche, Roth Eiche, Berg Eiche, Ger.
Quercia vera, Ital.
Roble, Span.

Varieties ‡ - - 1736
2 pubéscens ‡ fig. 1573.
Q. *s. var.* β Sm.
Q. *pubéscens* Willd.
Q. R. *lanuginòsum* Lam. Dict.
The Durmast, Mart. Fl. Rust.

Other Varieties - - 1737
1 Le Chêne à Trochets, or Chêne à petits Glands, *Bosc.*
2 Le Chêne à Feuilles découpées, *Bosc.*
3 Le Chêne laineux, or Chêne des Collines, *Bosc.*
4 Le Chêne noirâtre, *Bosc.*
Mr. Bree's Varieties. - 1738

3. pyrenàica *Willd.* ‡ Pyrenees fig. 1696. 1842
The Pyrenean Oak.
Q. Taúzin *Pers.*
Q. *nìgra* Thore.
Q. Tòsa *Bosc.*
Q. *stolonífera* Lapeyr.
Chêne noir, Secondat.

Varieties - - 1844
1 With large acorns, on peduncles, axillary and terminal, *N. Du Ham.*
2 With axillary acorns of a middle size, *N. Du Ham.*
3 With small acorns, on long racemes, *N. Du Ham.*
Q. Taúzin laciniàta *Desvaux.*
Q. Taúzin digitàta *Desvaux.*

4. apennìna *Lam.* ‡ Lyons fig. 1698. 1844
The Apennine Oak.
Q. *conglomeràta* Pers.
Chêne hivernal, Fr.

5. *E'*sculus *L.* ‡ South of Europe pl. 294. fig. 1699, 1670. 1844
The Esculus, *or Italian*, Oak.
P*hàgus* E'*sculus mas et fœm.* Dalech.
Chêne grec, Fr.
Varieties - - 1845

§ ii. *Cérris. Mossy-cupped, or Turkey, Oaks.* ‡ † 1730. 1846

6. *Cérris L.* ‡ France pl. 295, 296, 297. fig. 1702. 1846
The *bitter, or mossy-cupped*, Oak.
Q. *crinìta* α *and* β Lam. Dict.
Q. *Haliphlœ'os* Juss.
Q. *burgundìaca, &c.*, Bauh.
Q. *Cérris Plínii, &c.*, Lob.
Cérrus Dalech.
The Turkey Oak, the Iron or Wainscot Oak.
Chêne Cerris, Chêne de Bourgogne, Fr.
Burgundische Eiche, Cerr-eiche, Ger.
Varieties ‡ - - 1847

* *Foliage deciduous.*

a. *Leaves pinnatifid or sinuated. Cups of the Acorns mossy.*
1 vulgàris ‡ fig. 1702.
Q. C. *frondòsa* Mill.
Subvarieties ‡
See fig. 1703, 1704, 1705, and 1706. in p. 1846, 1847.
2 péndula *Neill.* ‡ fig. 1707.
The pendulous, or weeping, *Turkey* Oak.
3 variegàta *Lodd. Cat.* ‡

b. *Leaves dentate. Cups of the Acorns bristly.*
4 austrìaca ‡ fig. 1708. pl. 298.
Q. *austrìaca* Willd.
Q. *Cérris* Host, α and β No. 28.
Q. *crinìta* γ *Cérris* L.
Q. *cályce híspido, &c.*, Bauh.
Cérrus Clus.
Cérri minòris rámulus cum flòre, Ger.
Cérris Plínii minòre glánde Lob.
E'*gilops minòre glánde* Dod.
Haliphlœ'*os Cérris fœ'mina* Dalech.
5 càna màjor ‡ fig. 1709.
Q. *càna màjor* Lodd. Cat.
6 càna mìnor ‡
Q. *càna mìnor* Lodd. Cat.
7 Rágnal ‡
The Ragnal Oak.
Q. *Rágnal* Lodd. Cat.

** *Foliage subevergreen. Leaves dentate. Acorns with bristly Cups.*
8 fulhaménsis ‡ pl. 299, 300, 301. fig. 1710, 1711.
The Fulham Oak.
Q. C. *dentàta* Wats.
Q. C. *hýbrida var. dentàta* Swt.

Page
9 Lucombeàna ‡ pl. 300. 303, 304, 305. fig. 1712, 1713, 1714.
The Lucombe Oak.
Q. *Lucombeàna Swt.*
Q. *exoniénsis* Lodd. Cat.
The Evergreen Turkey Oak, the Devonshire Oak, the Exeter Oak.

*** *Foliage evergreen, or very nearly so. Leaves varying from dentate to sinuate. Cups of the Acorns bristly.*

10 L. críspa † pl. 306. fig. 1715. 1717. *c*, 1718.
The new Lucombe Oak.
Q. *Lucombeàna críspa* Hort.
11 L. suberòsa † fig. 1717*a*.
Q. *L. suberòsa* Hort.
12 L. incìsa † fig. 1717. *b*.
Q. *L. incìsa* Hort.
13 L. dentàta † fig. 1716.
Q. *L. dentàta* Hort.
14 heterophýlla † fig. 1719.
Q. *L. heterophýlla* Hort.
Other Varieties.
Q. C. bullàta.
The blistered, *or rough-leaved, Turkey* Oak.
Q. C. dentàta péndula.

7. *Æ'gilops L.* ‡ Greece, &c. pl. 307, 308. fig. 1721. 1861
The Ægilops, *or Valonia*, Oak.
Q. *orientàlis, &c.*, Tourn.
Æ'gilops sive Cérrus más C. Bauh.
Velàni *Tourn.*
Glàns Cérri Dalech.
The Great Prickly-cupped Oak.
Chêne Velani, Fr.
Chêne Velanède, Bosc.
Knopper Eiche, Ger.
Varieties ‡ - - 1862
2 péndula ‡
3 latifòlia *Hort.* ‡

§ iii. *A'lbæ. White American Oaks.* ‡ 1730. 1863

8. álba *L.* ‡ North America pl. 309. fig. 1722. *a*, 1723. 1726, 1727. 1864
The *American* white Oak.
Q. *álba virginiàna* Park.
Q. *a. pinnatífida* Walt.
Q. *palústris* Marsh.
Chêne blanc de l'Amérique, Fr.
Weisse Eiche, Ger.
Varieties ‡ - - 1864
1 pinnatífida *Michx.* ‡ f. 1723. *a*.
Q. *álba* Ban.
Q. *virginiàna* Catesb.
Q. *a. palústris* Marsh.
2 repánda *Michx.* ‡ fig. 1723. *b*, 1724.

9. olivæfórmis *Michx.* ‡ Banks of the Hudson - fig. 1730. 1869
The olive-shaped-*fruited American* Oak.
The mossy-cupped Oak, Amer.

10. macrocárpa *Willd.* ‡ United States pl. 310. fig. 1722. *b*, 1731. 1869
The large-fruited *American* Oak.
The over-cup white Oak, Bur Oak, Amer.
Chêne à gros Glands, Chêne frisé, Fr.
Gross-fruchtige Eiche, Ger.

11. obtusíloba *Michx.* ‡ North America pl. 311. fig. 1732. 1722. *c*. 1870
The blunt-lobed-*leaved, or Post*, Oak.
Q. *stellàta* Willd.
Iron Oak, Box white Oak, American Turkey Oak, Upland white Oak, Amer.

12. lyràta *Walt.* ‡ North America fig. 1733, 1734. 1871
The lyrate, *or over-cup*, Oak.
Swamp Post Oak, Water white Oak, Amer.

§ iv. *Prìnus. Chestnut Oaks.* ‡ 1730. 1872

13. *Prìnus L.* ‡ North America 1872
The Prinus, *or Chestnut-leaved*, Oak.
Varieties. ‡
1 palústris *Michx. Fl.* ‡ pl. 312. fig. 1735. - 1872
Q. P. *palústris* Michx. Syl.
Q. *Prìnos* L.
Q. *castaneæfòliis, &c.*, Pluk.
The Swamp Chestnut Oak, the Chestnut white Oak.
2 montícola *Michx. Fl.* ‡ pl. 313. fig. 1736. - - 1873
Q. P. *montícola* Michx. fil.
Q. *montàna* Willd.
Q. *Prìnus* Sm.
The Rock Chestnut Oak.
3 acuminàta *Michx. Fl.* ‡ f. 1737. 1875
Q. P. *acuminàta* Michx. fil.
Q. *Castànea* Willd.
The yellow Oak.
4 pùmila *Michx. Fl.* ‡ fig. 1738. 1722. *e*. - 1875
Q. P. Chìnquapin *Michx. fil.*
Q. Chìnquapin *Pursh.*
Q. *prinöìdes* Willd.
The Chinquapin, or Dwarf Chestnut, Oak.
5 tomentòsa *Michx. Fl.* ‡ pl. 314. fig. 1722. *d*, 1739. 1876
Q. P. *díscolor* Michx. fil.
Q. *bícolor* Willd.
Q. *Michaúxi Nutt.*
The Swamp white Oak.

§ v. *Rùbræ. Red American Oaks.* ‡ 1730. 1877.

14. rùbra *L.* ‡ North America pl. 315, 316, 317. fig. 1740. to 1744. 1877
The red, *or Champion*, Oak.
Q. *E'sculi divisurâ, &c.*, Pluk.
Varieties ‡ - - 1877
Q. rùbra latifòlia ‡
Q. *rùbra* L.
The Champion Oak.
Q. rùbra montàna ‡
The mountain red Oak.

15. coccínea *Willd.* ‡ South America pl. 318, 319. fig. 1746, 1747, 1748. 1879
The scarlet Oak.
Q. *rùbra β* Ait.

16. ambígua *Willd.* ‡ North America pl. 320. fig. 1749. 1881
The ambiguous, *or grey*, Oak.
Q. *boreàlis* Michx.

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17. falcàta *Michx.* ‡ North America fig. 1750, 1751. 1882
The sickle-shaped, *or Spanish*, Oak.
Q. *díscolor* Ait.
Q. *elongàta* Willd.
Q. *lyràta* Lodd. Cat.
Q. *cuneàta* Wang.
Q. *tríloba* Willd.
The downy-leaved Oak.
18. tinctòria *Willd.* ‡ North America pl. 321. fig. 1753, 1754. 1884
The *Quercitron, or* Dyer's Oak.
Q. *virginiàna, &c.*, Pluk.
Q. *díscolor* Willd.
The black Oak, Amer.
Chêne des Teinturiers, Fr.
Varieties ‡ - - 1885
1 angulòsa *Michx.* ‡ f. 1753, 1754
Q. *nìgra* Pursh.
Q. *americàna* Pluk.
Q. *velutìna* Lam. Dict.
Q. *tinctòria* Bart.
2 sinuòsa *Michx.* ‡ fig. 1755, 1756, 1757.
Q. *nìgra* Wang.
19. palústris *Willd.* ‡ North America pl. 322. fig. 1758, 1759. 1887
The Marsh, *or Pin*, Oak.
Q. *montàna* Lodd. Cat.
Q. *Banísteri Lodd. Cat.*
20. Catesbæ̀i Willd. ‡ North America fig. 1762, 1763. 1889
The *barren Scrub* Oak.
Q. *rùbra β* Abb. and Sm.
Q. E'*sculi divisùra, &c.*, Cat.
§ vi. *Nìgræ. Black American Oaks.* ‡ ♣ 1730. 1890
21. nìgra *L.* ‡ North America fig. 1764, 1765. 1890
The black Jack Oak.
Q. *marylándica, &c.*, Ray.
Q. *ferrugínea* Michx.
Q. *aquática* Lodd. Cat.
Barrens Oak, Amer.
22. aquática *Soland.* ‡ North America fig. 1767. 1892
The Water Oak.
Q. *fòliis cuneifórmibus, &c.*, Gron.
Q. *fòlio non serràto, &c.*, Cat.
Q. *nìgra* Willd.
Q. *uliginòsa* Wangh.
Varieties ‡ - - 1892
2 nàna ‡ fig. 1767.
The dwarf *jagged* Oak.
Q. *aquática* Sm.
Q. *a. elongàta* Ait.
Q. *dentàta* Bart.
Q. *nàna* Willd.
3 marítima *Michx.* ‡
Q. *hemisphæ'rica* Willd.
Other Varieties.
See fig. 1767, 1768.
23. ilicifòlia *Wangh.* ♣ North America fig. 1770. 1893
The Holly-leaved, *or Bear*, Oak.
Q. *Banísteri Michx.*
? Q. *aquática* Abb. et Sm.
Black Scrub Oak, Dwarf red Oak, Amer.

Page
24. heterophýlla *Michx.* ‡ N. Amer. 1894
The various-leaved, *or Bartram's*, Oak.
25. agrifòlia *Willd.* ♣ North America 1894
The prickly-leaved *American* Oak.
§ vii. *Phéllos. Willow Oaks.* 1730. 1894 ‡ ♣ ⸙
26. *P*hellos *L.* ‡ North America pl. 323. fig. 1771. 1894
The Willow Oak.
Q. *virginiàna, &c.*, Pluk.
Q. I'*lex marylándica* Ray.
Varieties ‡ ♣ - - 1895
1 sylváticus *Michx.* ‡ fig. 1774.
2 latifòlius *Lodd. Cat.* ‡ pl. 324.
3 hùmilis *Pursh.* ♣
4 seríceus ⸙
Q. *Phéllos* Sm.
Q. P. *pùmilus* Michx.
Q. *humílior sálicis fòliis brèvior.*
The Highland Willow Oak.
Q. *serícea* Willd.
Q. *pùmila* Michx.
The running Oak.
5 cinèreus. ‡ ✱ fig. 1773.
Q. P. *γ* L.
Q. P. *β cinèreus* Ait.
Q. *hùmilis* Walt.
Q. *cinèrea* Willd.
The Upland Willow Oak.
6 marítimus *Michx.*
Q. *marítima* Willd.
27. (*P.*) *l*aurifòlia *Willd.* ‡ N. America fig. 1776. 1897
The Laurel-leaved Oak.
The Laurel Oak, Swamp Willow Oak.
Variety ‡ - - 1897
2 hýbrida *Michx.* ‡ fig. 1775.
Q. l. 2. *obtùsa* Ait.
28. imbricàta *Willd.* ‡ North America fig. 1777. 1898
The Shingle Oak.
Q. *latifòlia* Hort.
Laurel Oak, Field-Cup Oak, Jack Oak, Black Jack Oak, Amer.
Chêne à Lattes, Fr.

B. *Leaves evergreen.*

§ viii. I'*lex. Holm, or Holly, Oaks.* ♀ ✱ 1899

a. *Natives of Europe.*

29. I'lex *L.* ♀ South of Europe pl. 325. fig. 1781. 1899
The *common evergreen, or* Holm, Oak.
I'*lex arbòrea* Bauh.
L'Yeuse, or Chêne vert, Fr.
Steine Eiche, Ger.
Elice, Ital.
Encina, Span.
Varieties ♀ - - 1899
1 integrifòlia ♀
Smìlax, Dutch.
Sùber secúndus Matth.
2 serratifòlia *Lodd. Cat.* ♀ f. 1778.
I'*lex* Matth.
3 *fagifòlia Lodd. Cat.* ♀ ✱ f. 1779.
Phéllodrys Matth.
I'*lex*, No. 3. Du Ham.
4 críspa *Lodd. Cat.* ♀ ✱
5 latifòlia *Lodd. Cat.* ♀ pl. 396. fig. 1780.
Q. I. *oblónga* Hort.

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6 longifòlia *Lodd. Cat.* 🌳 ✱ pl. 327.
Q. I. *salicifòlia* Hort.
7 variegàta *Hort.* 🌳 ✱
Other Varieties - - 1900

30. *Ballòta* Desf. ✱ Barbary fig. 1783, 1784. 1905
The sweet Acorn Oak.
? *Ìlex màjor* Clus.
Chêne à Glands doux, *Chêne Ballote*, Fr.

31. gramúntia *L.* 🌳 ✱ Spain, &c. pl. 328. fig. 1787, 1788. 1906
The *Holly-leaved* Grammont Oak.
? *Ìlex fòliis rotundióribus, &c.*, Magn.
Chêne de Grammont, Fr.
Wallenblättrige Eiche, Ger.
Encina dulce, *Gouetta*, Span.

32. coccífera *L.* ✱ South of Europe fig. 1789, 1790, 1791, 1792. 1908
The *Kermes, or* Berry-bearing, Oak.
Ìlex coccífera Cam.
Ìlex aculeàta cocciglandífera Garid.
Ìlex coccígera, Ger.
Chêne aux Kermes, Fr.
Kermes Eiche, Ger.

33. pseùdo-coccífera *Desf.* 🌳 ✱ Algiers fig. 1794. 1911
The false berry-bearing, *or Kermes*, Oak.
Chêne à faux Kermes, Fr.
Stecherınde Eiche, Ger.

34. *Sùber L.* 🌳 South of Europe pl. 329, 330. fig. 1797, 1798. 1800. 1911
The Cork Tree.
Sùber Cam.
Sùber Prìnus Matth.
Sùber latifòlium, &c., Du Ham.
Chêne Liège, Fr.
Kork Eiche, Ger.
Alcornoque, Span.
Varieties 🌳 - - 1911
2 latifòlium 🌳
Sùber latifòlium, &c., Bauh.
3 angustifòlium 🌳 fig. 1798.
Sùber angustifòlium Bauh.
4 dentàtum 🌳 pl. 331. fig. 1797.
Q. *Pseùdo-Sùber* of Muswell Hill.

35. Pseùdo-*S*ùber *Desf.* 🌳 Tuscany, &c. fig. 1801. 1917
The False-Cork Oak.
Chêne faux Liège, *Chêne de Gibraltar*, Fr.
Unächte Kork Eiche, Ger.

b. *Natives of North America.*

§ ix. *Viréntes. Live Oaks.* 🌳 1730. 1918

36. vìrens *Ait.* 🌳 North America pl. 332. fig. 1802, 1803. 1918
The green, *or Live*, Oak.
Q. *Phéllos β* L.
Q. *sempervìrens* Banister.

37. *myrtifòlia Willd.* 🌳 Carolina - 1920
The Myrtle-leaved Oak.

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c. *Natives of Nepal.*

§ x. *Lanàtæ. Woolly, or downy, leaved Oaks.* 🌳 1730. 1920

38. lanàta *Sm.* 🌳 Upper Nepal fig. 1804. 1920
The woolly-*leaved Nepal* Oak.
Q. *lanuginòsa* D. Don.
Q. Bánja *Ham. MSS.*
? Q. *oblongàta* D. Don.
? Q. *incàna* Royle.

39. annulàta *Sm.* 🌳 Upper Nepal fig. 1805. 1921
The ring-*cupped* Oak.
Q. Phullàta *Ham. MSS.*
? Q. *Kamroópii D. Don.*
Q. *glaúca* Lodd. Cat.
? Q. *glaúca* Thunb.
? Q. *acuminàta* Hort.

App. i. *Oaks in British Gardens, not referable, with certainty, to any of the above Sections.* 🌲 🌳 - - ✓ 1922

40. Túrner*i* Willd. 🌲 Thibet f. 1806. 1922
Turner's Oak.
Q. *hýbrida* Hort.
Chêne de Turner, Fr.
Turnersche Eiche, Ger.

41. hýbrida nàna 🌲 Hybrid fig. 1810, 1811. 1924
The dwarf hybrid Oak.
Q. *hýbrida* Lodd. Cat.
A hybrid between Q. *pedunculàta and* Q. *Ìlex*, Hort. Soc. Gard.
Q. *hùmilis* Hort.
Q. *nàna Hort.*

42. Fontanès*ii* Guss. 🌲 Calabria fig. 1813. 1925
Desfontaine's Oak.
Q. *pseùdo-coccífera* of Catros, &c.

43. ? austràlis *Link.* 🌳 Gibraltar fig. 1814. 1925
The southern Oak.

44. Coók*ii* 🌳 Gibraltar fig. 1815. 1926
Captain Cook's Oak.

45. falkenbergénsis *Booth.* 🌲 Falkenberg 1926
The Falkenberg Oak.

App. ii. *European kinds of Oaks, not yet introduced.* - - 1926

Q. *fagínea Lam.* Spain. fig. 1816
Q. *ægilopifòlia* Lam. Dict.
Phéllodrys álba angustifòlia, &c., Dalech.
Q. ægilopifòlia *Pers.* Spain
Q. *hispánica β* Lam. Dict.
Chêne à Feuilles d' Egilops, Bosc.
Q. *Bróssa* Bosc. Between Périgueux and Bordeaux.
Chêne Brosse, at Nantes.
Chêne nain, Banami.
Q. viminàlis *Bosc.* Jura.
Chêne Saule, *Chêne Osier*, *Chêne de Haie*, Fr.
Q. áspera *Bosc.*
Le Chêne âpre, Fr.
Chêne Lézermien, *Bosc.*
Chêne Castillan, *Bosc.* Spain.
Q. lusitánica *Lamb.* Portugal. fig. 1817.
Q. *valentìna* Cav.
Ròbur 4., and *Ròbur* 5., Clus.
Gálla, sive R*òbur màjus*, Ger., and *Gálla mìnor* Ger.
The Portuguese Gall Oak.
Chêne du Portugal, Fr.

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Q. *prásina* Pers. Portugal. fig. 1818.
    Q. *glaúca* Bosc.
Q. calycìna *Poir.* France
Q. expánsa *Poir.*
Q. rotundifòlia *Lam.* Spain.
    The round-leaved Spanish Oak.
    Chêne à Feuilles rondes.
Q. hùmilis *Lam.* Portugal.
    The dwarf Portuguese Oak.
    Q. pèdem vix sùperans Bauh.
    Robur 7., sive Q. pùmila Clus.
    Chêne pygmée, Fr.

App. iii. *African Oaks which have not yet been introduced.* - 1928

Q. obtécta *Poir.*

App. iv. *Oaks of Asia Minor and Persia not yet introduced.* - 1928

Q. infectòria *Oliv.* fig. 1819, 1820.
    Q. cariénsis Willd.
    Chêne à Galles, Fr.
    Färber Eiche, Ger.
Q. Libàni *Oliv.* Mount Lebanon. fig. 1826.
Q. rígida *Willd.* Caramania.
    ? *Ilex aculeàta, &c.,* Tourn.
Q. ibérica *Stev.* Georgia.
Q. castaneæfòlia *C. A. Meyer.* Mazanderan.
Q. mongólica *Fisch.* Tartary.

App. v. *Himalayan Oaks not yet introduced.* 1933

Q. spicàta *Sm.* Nepal. fig. 1828.
    Q. squamàta Box.
    Q. A'rcula *Ham. MSS.*
Q. obtusifòlia *D. Don.* Nepal
Q. grandifòlia *D. Don.* Nepal. fig. 1829.
    The Magnolia-leaved Oak.
Q. velutina *Lindl.* Tavoy. fig. 1830.
Q. lamellòsa *Sm.* Nepal. fig. 1831.
    Q. imbricàta Ham. MSS.
Q. semicarpifòlia *Sm.* Nepal. fig. 1832.
    Cassina *Ham. MSS.*

App. vi. *Oaks of Japan, Cochin-China, and China, which have not yet been introduced.* 1935

Q. glàbra *Thunb.* Japan.
Q. concéntrica *Lour.* Cochin-China
Q. acùta *Thunb.* Japan.
Q. serràta *Thunb.* Japan.
Q. glaúca *Thunb.* Japan.
    Kas no Ki Kæmpf.
Q. cuspidàta *Thunb.* Japan.
    Sui, vulgò Ssi no Ki, Kæmpf.
    Fàgus fòlio Fràxini Kæmpf.
Q. dentàta *Thunb.* Japan.
    Koku Kæmpf.
Q. chinénsis *Bunge.* China.
Q. obovàta *Bunge.* Near Pekin.

App. vii. *Oaks of Java, Sumatra, and the Molucca Isles, not yet introduced.* - 1936

Q. sundàica *Blume.* Java. fig, 1833, 1834.
    The Sunda Oak.
Q. pruinòsa *Blume.* fig. 1836.
    The frosty Oak.
Q. angustàta *Blume.* Gedé. fig. 1835.
    The narrow-*leaved* Oak.
Q. pállida *Blume.* Gedé. fig. 1837, 1838.
    The pale Oak.
Q. élegans *Blume.* Bantam. fig. 1832.
    The elegant Oak.
Q. placentària *Blume.* Gedé. fig. 1840.
    The placenta-*cupped* Oak.
Q. glabérrima *Blume.* Gedé. fig. 1842.
    The smoothest-*leaved* Oak.
Q. costàta *Blume.* fig. 1841. 1843.
    The ribbed-*cupped* Oak.
Q. rotundàta *Blume.* fig. 1844.
    The round-fruited Oak.
Q. platycárpa *Blume.* Bantam. fig. 1846.
    The broad-fruited Oak.
Q. daphnoïdea *Blume.* Bantam. fig. 1845.
    The Daphne-like Oak.
Q. racemòsa *Hook.* Sumatra.
Q. gemelliflòra *Blume.* Salak, &c. fig. 1847.
    The twin-flowered Oak.
Q. indùta *Blume.* Gedé. fig. 1848.
    The cloth-*cupped* Oak.
Q. urceolàris *Hook.* Sumatra.

Page
Q. pseùdo-molúcca *Blume.* Java. fig. 1849.
    The false Molucca Oak.
Q. molúcca *L.* Molucca Isles.
    The Molucca Oak.
Q. turbinàta *Blume.* Salak. fig. 1850.
    The top-shaped-*cupped* Oak.
Q. lineàta *Blume.* Java. fig. 1851.
    The parallel-veined Oak.

App. viii. *Mexican Oaks not yet introduced.* 1941

Q. xalapénsis *Humb. et Bonp.* New Spain. fig. 1852.
    Roble de Duela, Span.
Q. glaucéscens *Humb. et Bonp.* Mexico. fig. 1853.
Q. obtùsa *Humb. et Bonp.* New Spain. fig. 1854.
Q. panduràta *Humb. et Bonp.* fig. 1855, 1856.
Q. repánda *Humb. et Bonp.* New Spain. fig. 1857.
Q. laùrina *Humb. et Bonp.* New Spain. fig. 1858.
Q. sideróxyla *Humb. et Bonp.* New Spain. fig. 1860.
Q. mexicàna *Humb. et Bonp.* Mexico. fig. 1861.
Q. crássipes angustifòlia *Humb. et Bonp.* Ario. fig. 1859.
Q. crássipes *Humb. et Bonp.* Ario. fig. 1862.
Q. lanceolàta *Humb. et Bonp.* New Spain. fig. 1863.
Q. reticulàta *Humb. et Bonp.* New Spain. fig. 1865.
Q. chrysophýlla *Humb. et Bonp.* fig. 1864.
Q. pulchélla *Humb. et Bonp.* New Spain. fig. 1866.
Q. spicàta *Humb. et Bonp.* Nabajas. fig. 1867.
Q. stipulàris *Humb. et Bonp.* Mexico. fig. 1868.
Q. crassifòlia *Humb. et Bonp.* New Spain. fig. 1869.
Q. depréssa *Humb. et Bonp.* Mexico. fig. 1871.
Q. ambígua *Humb. et Bonp.* Mexico. fig. 1870.
Q. confertifòlia *Humb. et Bonp.* New Spain. fig. 1872.
Q tridens *Humb. et Bonp.* New Spain. fig. 1873.
Q. acutifòlia *Willd.* New Spain. fig. 1874.
Q. ellíptica *Willd.* Mexico.
Q. mucronàta *Willd.* New Spain.
    Q. *Castànea* Nee.
Q. tomentòsa *Willd.* New Spain.
    Q. *pedunculàris* Nee.
Q. circinàta *Willd.* New Spain.
Q. spléndens *Willd.* New Spain.
Q. rugòsa *Willd.* Huifquilica and Ociula.
Q. macrophýlla *Willd.* New Spain.
Q. diversifòlia *Willd.* New Spain.
Q. cándicans *Willd.* New Spain.
Q. microphýlla *Willd.* New Spain.
Q. lobàta *Willd.* New Spain.
Q. magnoli*æfòlia* Willd. Mexico.
Q. lùtea *Willd.* Mexico.
    The yellow-*leaved Mexican* Oak.
Q. salicifòlia *Willd.* Mexico.
    The Willow-leaved *Mexican* Oak.

II. *FA'GUS L.* 🌳 🌱 - 1715. 1949
    THE BEECH.
        Fagus of the Romans.
        Oxua of the Greeks.
        Castànea Tourn.
        Hêtre, Fr.
        Buche, Ger.
        Beuke, Dutch.
        Bog, Dan.
        Bok, Swed.
        Buk, Russ. and Pol
        Faggio, Ital.
        Haya, Span.
        Faya, Port.

A. *Capsule muricate, capsuliform. Ovaries included. Young leaves plicate.*

Natives of Europe, and of North and South America.

a. *Species in Cultivation in British Gardens.*

1. sylvática *L.* 🌳 Europe - 1950
    The Wood, *or common,* Beech.
        Castànea Fàgus, Scop.
        Fàgus Bauh.
        F. *sylvéstris* Michx.
        O'xya, Greek.
        Fàgus, Latin.
        Hêtre commun, Fr.
        Gemeine Buche, Ger.
        Rood-beuke, Dutch.
    Varieties 🌳 - - 1950
    2 purpùrea *Ait.* 🌳
        The purple Beech.
            F. *s. 2. àtro-rùbens* Du Roi.
            Hêtre noir, Fr.
    3 cùprea *Lodd. Cat.* 🌳
        The copper-coloured Beech.

Page
4 fòliis variegàtis *Lodd. Cat.* 🌳
5 heterophýlla 🌳 fig. 1875, 1876.
The various, *or cut*, leaved Beech.
F. *s. laciniàta* Lodd. Cat.
F. *s. asplenifòlia* Lodd. Cat.
F. *s. incìsa* Hort.
F. *s. salicifòlia* Hort.
Hêtre à Feuilles de Saule, Fr.
6 cristàta *Lodd. Cat.* pl. 334. fig. 1877.
The crested, *or curled-leaved*, Beech.
F. *s. críspa* Hort.
Hêtre Crête de Coq, Fr.
7 péndula *Lodd. Cat.* 🌳 pl. 335, 336.
The weeping Beech.
Hêtre Parasol, Fr.
Other British Varieties or Variations.
8 americàna 🌳
F. *sylvéstris* Michx.
White Beech, Amer.

2. ferrugínea *Ait.* 🌳 N. Am. f. 1917. 1980
The *American* ferruginous-*wooded* Beech.
F. *americàna latifòlia* Du Roi.
Red Beech, Amer.
Varieties. 🌳
2 caroliniàna 🌳 fig. 1915.
F. *caroliniàna* Lodd. Cat.
3 latifòlia 🌳 fig. 1916.
F. *latifòlia* Lee.

b. *Species not yet introduced.*

3. oblìqua *Mirb.* 🌳 Chili fig. 1919. 1982
The oblique-*leaved* Beech.

B. *Cupule involucriform; Segments narrow, laciniate. Ovaries laterally inserted. Young leaves not plicate.*

a. *Species introduced into Britain.*

4. *b*etulöìdes *Mirb.* 🌲 Terra del Fuego fig. 1920. 1982
The Birch-like, *or evergreen*, Beech.
Bétula antárctica Forst.

5. antárctica *Forst.* 🌳 Terra del Fuego 1982
The antarctic Beech.

b. *Species not yet introduced into British Gardens.*

6. Dombèy*i* Mirb. 🌳 Chili fig. 1921. 1982
Dombèy's, *or the Myrtle-leaved*, Beech

7. dùbia *Mirb.* 🌲 Straits of Magellan fig. 1932, 1933
The dubious Beech.

III. CASTA'NEA *Tourn.* 🌳 1716 1983
The Chestnut.
Fàgus L. and others.
Châtaignier, Fr.
Kastanie, Ger.
Castagno, Ital.
Castano, Span.
Castanheiro, Port.
Castanietræ, Swed. and Dan.
Keschton, Russ.

1. vésca *Gærtn.* 🌳 Asia Minor pl. 337, 338. 1983
The eatable, *sweet, or Spanish*, Chestnut.
Fàgus Castànea L.
Castànea satìva Mill.
Castànea vulgàris Lam.

Page
Varieties 🌳 - - 1984
A. *Botanical Varieties.*
2 asplenifòlia *Lodd. Cat.* 🌳
C. *heterophýlla* Hort.
C. *laciniàta* Hort.
C. *salicifòlia* Hort.
3 cochleàta *Lodd. Cat.* 🌳
4 glàbra *Lodd. Cat.* 🌳
C. *v. fòliis lùcidis* Hort.
5 glaúca 🌳
C. *glaúca* Hort.
6 variegàta 🌳
C. *v. fòliis aúreis* Lodd. Cat.
7 americàna 🌳
C. *vésca* Michx.

B. *Fruit-bearing Varieties.* (See p. 1984.)

2. pùmila *Willd.* 🌳 🌿 North America fig. 1927, 1928. 2002
The Dwarf Chestnut, *or Chincapin.*
Fàgus pùmila L.
Castànea pùmila virginiàna, &c., Pluk.
Châtaignier Chincapin, Fr.
Zwerch Kastanie, or Castanje, Ger.

App. i. *Species of Castànea not yet introduced into European Gardens.* 2003

C. índica *Rox.* Nepal.
C. Roxbúrghii Lindl. Chittagong.
Quércus castunicárpa Roxb.
C. sphærocárpa *Lindl.* Silhet.
C. tribulöìdes *Lindl.* Upper Nepal.
Quércus tribulöìdes Sm.
Quércus Catúngea *Ham. MSS.*
Quércus fèrox Roxb.
C. martabánica *Wall.* Martaban. fig. 1929.
C. argéntea *Blume.* Java. fig. 1831.
C. *Tungúrrut* Blume. Bantam. fig. 1930.
C. javánica *Blume.* Gedé. fig. 1932.
var. C. j. montàna *Blume.*
C. *montàna* Blume. Bajador.
C. j. fucéscens *Blume.*
C. inérmis *Lindl.* Singapore.
C. chinénsis *Spreng.* China.

IV. CA'RPINUS *L.* 🌳 🌿 1716. 2004
The Hornbeam.
Charme, Fr.
Haynbuche, or Hainbuche, Ger.

1. *Bétulus L.* 🌳 Britain pl. 338, 339. 2004
The Birch, *or common*, Hornbeam.
Cárpinus Matth.
O'strya Bauh. Pin.
O'rnus Trag.
Fàgus Bauh. Hist.
Bétulus Lob.
Varieties 🌳 - - 2005
2 incìsa *Lodd. Cat.* 🌳
C. *v. quercifòlia* Desf.
C. *v. heterophýlla* Hort.
3 variegàta *Lodd. Cat.* 🌳

2. (*B.*) americàna *Michx.* 🌳 N. America fig. 1936. 2013
The American Hornbeam.
C. *virginiàna* Michx.

3. (*B.*) orientàlis *Lam.* 🌳 🌿 Asia Minor fig. 1937. 2014
The Oriental Hornbeam.
C. *duinénsis* Scop.

Page
App. i. *Species or Varieties of Cárpinus not yet introduced into European Gardens*. 2014

C. (B.) *Carpinízza* Hort. Transylvania.
C. viminea *Lindl.* Nepal. fig. 1938.
C. faginea Lindl.

V. *O'*STRYA *Willd.* ♆ - 1716. 2015
THE HOP HORNBEAM.
Cárpinus L. and others.
Hopfenbuche, Ger.

1. vulgàris *Willd.* ♆ Italy pl. 340, 341. fig. 1939. 2015
The Hop Hornbeam.
Cárpinus O'*strya* Hort. Cliff.
O'*strya carpinifòlia* Scop.
O'*strya* Bauh.
O'*strya italica, &c.*, Michx.

2. (v.) virgínica *Willd.* ♆ North America pl. 342. 1940. 2015
The Virginian Hop Hornbeam.
Cárpinus virginiàna Abb.
Cárpinus O'*strya virginiàna* Michx. Fl.
Cárpinus O'*strya* Michx. Syl.
Iron Wood, Lever Wood, Amer.
Bois dur, Illinois.

VI. *CO'*RYLUS *L.* ♆ ✲ 1716. 2016
THE HAZEL.
Coudrier, Fr.
Haselnuss, Ger.

1. *A*vellàna *L.* ✲ Europe fig. 1941. 2017
The *common* Hazel Nut.
Coudrier Noisetier, Fr.
Haselstrauch, Nussbaum, Ger.
Avellano, Nocciolo, Ital.
Avellano, Span.

Varieties ✲ - - 2017

A. *Botanical Varieties.*

1 sylvéstris *Ait.* ✲ fig. 1941
C. *Avellàna* Svensk.
C. *sylvéstris* Bauh.
2 pùmilus ✲
C. *pùmilus* Lodd. Cat.
3 heterophýlla ✲
The various, *or Nettle*, leaved Hazel.
C. *heterophýlla* Lodd. Cat.
C. *laciniàta* Hort.
C. *urticifòlia* Hort.
4 purpùrea ✲
C. *purpùrea* Lodd. Cat.
C. *àtro-purpùrea* Hort.

B. *Varieties cultivated for their Fruit.*

5 tubulòsa fig. 1942. ✲
C. *tubulòsa* Willd.
C. *màxima* Mill.
C. *satìva* Bauh.
C. *s. rùbra* Ait.
Red Filbert.
Langbartnuss, or Lambertnuss, Ger.
Noisetier franc à Fruit rouge, Fr.
6 tubulòsa álba ✲
C. *satìva álba* Ait.
C. A. *álba* Lodd. Cat.
White Filbert.
Weisse Langbartnuss, Ger.
7 críspa *E. of Pl.* ✲ fig. 1943.
The frizzled Filbert.
8 ténuis *Lodd. Cat.* ✲
The thin-*shelled, or Cosford*, Nut.

Page
9 glomeràta *Bauh.* ✲
C. *glomeràta* Lodd. Cat.
Cluster Nut, Hort. Soc. Cat.
Noisetier à Grappes, Fr.
10 barcelonénsis *Lodd. Cat.* ✲
C. *satìva grándis* Bauh.
C. A. *grándis* Lodd. Cat.
The Cob Nut.
The Barcelona Nut.
Downton large Nut, &c., Hort. Soc. Cat.
11 Lambérti. ✲
C. *Lambérti* Lodd. Cat.
The Spanish Nut.
Large Bond Nut, Lambert's Nut, Lambert's large Nut, Toker Nut, &c., Hort. Soc. Cat.

Other Varieties.
The great Cob Nut, *Hort. Soc. Cat.*
The Downton large square Nut, *Hort. Soc. Cat.*
The Northampton Nut, *Hort. Soc. Cat.*
The Northamptonshire Prolific, *Hort. Soc. Cat.*

2. *C*olúrna *L.* ♆ Turkey pl. 343, 344. fig. 1948. 2029
The *Constantinople* Hazel.
C. *byzantìna* Herm.
Avellàna peregrìna hùmilis Bauh.
A. pùmila byzantìna Clus.
C. *arbòrea* Hort.
Le Noisettier de Bizance, Fr.
Byzantinische Haselnuss, Ger.

Varieties ♆ - - 2029
2 intermèdia ♆
C. *intermèdia* Lodd. Cat.
3 arboréscens *Fisch.* ♆

3. rostràta *Ait.* ✲ North America 2030
The beaked, *American, or Cuckold*, Hazel.
C *sylvéstris, &c.*, Gron.
C. *cornùta* Hort.

4. americàna *Michx.* ✲ N. America 2030
The American Hazel.
C. *americàna hùmilis* Wang.
Dwarf Cuckold Nut, wild Filbert, Amer.

App. i. *Species of Córylus not yet introduced.* 2031

C. fèrox *Wall.* Nepal. fig. 2250.

Garryàceæ. - 2031

I. GA'RRY*A* Doug. ✱ - - 2031
THE GARRYA.

1. ellíptica *Doug.* ✱ North Carolina fig. 1951. 2032
The elliptic-*leaved* Garrya.

Platanàceæ. ♆ ✱ - 2032

I. *PLA'TANUS L.* ♆ ✲ - 2033
THE PLANE TREE.
Platane, Fr.
Platanus, Ger.

Page
1. orientàlis *L.* ‡ Levant
pl. 345, 346. fig. 1954, 1955. 2033
The Oriental Plane.
P. *orientàlis vèrus* Park.
Platane de l'Orient, Fr.
Morgenlandischer Platanus, Ger.
Doolb, Arabic.
Chinar, Persian.
Varieties ‡ - - 2034
2 acerifòlia *Ait.* ‡ pl. 347, 348.
The Maple-leaved Plane Tree.
P. *o. Acèris folio* Tourn.
P. *acerifòlia* Willd.
P. *intermèdia* Hort.
3 hispánica ‡
The Spanish Maple.
P. *hispánica* Lodd. Cat.
P. *macrophýlla* Cree.
4 cuneàta ‡ pl. 349.
P. *o. undulàta* Ait.
P. *cuneàta* Willd.
Other Varieties.

2. occidentàlis *L.* ‡ ❀ North America
pl. 350. fig. 1959. 2043
The Western Plane.
P. *occidentàlis seu virginiénsis* Park.
Button-wood, *Water Beech*, *Sycamore*, *Cotton Tree*, Amer.
Platane de Virginie, Fr.
Variety ‡ - - 2043
2 tortuòsa ‡
Platane tortillard, Fr.

Balsamàceæ. ‡ - 2048

I. LIQUIDA'MBAR *L.* ‡ - 2049
THE LIQUIDAMBAR.
Altingia Noronha.
Liquidambar, Fr.
Ambarbaum, Ger.

1. Styracíflua *L.* ‡ North America
pl. 351, 352. fig. 1961. 2049
The Sweet Gum Liquidambar.
Liquidámbar árbor Pluk.
Stýrax A'ceris folio Ray.
Liquidambar résineux, *Copalme de l'Amérique*, *Liquidambar Copal*, Fr.
Fliesender Ambarbaum, Ger.

2. imbérbe *Willd.* ‡ Levant f. 1963. 2053
The beardless, *or Oriental*, Liquidambar.
L. orientàlis Mill.
? *Plátanus orientàlis* Pocock.
L. imbérbis Sm.

App. i. *Species of Liquidámbar not yet introduced.* - - 2054
L. Altíngia Blume. Java. fig. 1965.
Alting's Liquidambar.
Altíngia excelsa Noronha.
Lígnum papuànum Rumph.

Myricàceæ. ❀ ♣ 2055

I. *MYRI'CA* *L.* ❀ ♣ - 2055
THE CANDLEBERRY MYRTLE.
Galé, Fr.
Wachs Strauss, Ger.

Page
1. *Gàle* L. ❀ Europe f. 1996, 1967. 2056
The *Sweet Gale*, *Sweet Willow*, *Candleberry Myrtle*, *or Dutch Myrtle*.
Gàle *Ray.*
Elæágnus Card.
Mýrtus brabántica, Ger.
Rhús myrtifòlia bélgica Bauh.
Rhús sylvéstris áltera Dalech.
Rhús sylvéstris Park.
Myrìca palústris Lam.
Galé, *Pimento Royal*, Fr.
Gemeine Wachs Strauch, Ger.

2. cerífera *L.* ❀ North America 2057
The *common* Wax-bearing, *or American*, Candleberry Myrtle.
M. *cerífera angustifòlia* Ait.
Mýrtus brabántica, *&c.* Pluk.
Cérier de la Louisiane, Fr.
Varieties ❀ ♣ - - 2057
2 latifòlia *Ait.* ❀ fig. 1668.
The broad-leaved *American* Candleberry Myrtle.
M. *c. mèdia* Michx.
M. *caroliniénsis* Willd.
M. *pennsylvánica* Lam.
M. *c. sempervirens* Hort.
Mýrtus brabántica Cat.
Cérier de Pennsylvanie, Fr.
Carolinischer Wachstrauch, Ger.
3 pùmila *Michx.* ♣

App. i. *Half-hardy Species of Myrìca cultivated in British Gardens.* - 2058
M. Fàya Ait. Madeira. fig. 1969.
The Azores Candleberry Myrtle.
M. serràta *Lam.* C. G. H.
M. *æthiópica* L.
M. *conífera* Burm.
M. quercifòlia *L.* C. G. H.
Laúrus africàna, *&c.*, Com.
M. q. hirsùta *Mill.*
M. cordifòlia *L.* C. G. H.
Alaternöides I'licis fòlio, *&c.*, Walt.
M. *fòliis subcordàtis*, *&c.*, Burm.
Gàle *capénsis*, *&c.*, Petiv.
Coriotragematodéndros I'licis aculeàtæ fòlio Pluk.
M. capénsis *Lodd. Cat.*

App. ii. *Half-hardy Species of Myrìca not yet introduced.* - 2059
M. spathulàta. Madagascar. fig. 1970.

II. COMPTO'N*IA* Banks. ♣ - 2059
THE COMPTONIA.
Liquidámbar L. Sp.
Myrìca L. Hort. Cliff.
Gàle *Petiv.*
Comptone, Fr.
Comptonie, Ger.

1. *a*splenifòlia *Banks.* ♣ North America
fig. 1971. 2059
The Asplenium-leaved Comptonia.
Liquidámbar asplenifòlium L. Sp.
Liquidámbar peregrìnum L. Syst.
Myrìca L. Hort. Cliff.
Gàle *mariàna* Pet.
Mýrtus brabánticæ affìnis Pluk.
The sweet Fern Bush, Amer.

Casuaràceæ. 2060

Casuarìna *e*quisetifòlia East Indies
fig. 1972. 2060
C. littòrea Rumph.
Swamp Oak, Austral.
Filao à Feuilles de Prêle, Fr.
C. nodiflòra *Forst.* New Caledonia.
C. dístyla *Vent.* New Holland.
C. strícta *Ait.* New Holland.
C. torulòsa *Ait.* Holland.
The Cork-barked Casuarina.

Page

Gnetàceæ. ♣ ⊓ - 2062

I. *E'*PHEDRA *L.* ♣ ⊓ - - 2062
THE EPHEDRA.

1. distàchya *L.* ♣ Spain fig. 1973, 1974. 2063
The two-spiked Ephedra.
Great shrubby Horsetail, or Sea Grape.
E'phedra vulgàris Rich.
Polýgonum marìnum Tabern.
Polýgonum quártum Plínii Clus.
Polýgonum lamifòlium, &c., Bauh.
E. marìtima màjor Tourn.
Tràgos Cam.
Raisin de Mer, Ephèdre multiflore, Fr.
Zweyahriger Ross Schwanz, Ger.

2. monostàchya *L.* ⊓ Siberia fig. 1975, 1976. 2063
The one-spiked Ephedra, *or Small shrubby Horsetail.*
E. petìolis sæ'pe plùribus, &c., Gmel.
E. mínima, &c., Amm.
E. polygonöìdes Pall.
Ephèdre mineure, Ephèdre de Sibérie, Fr.

3. altíssima *Desf.* ♣ Barbary fig. 1977, 1978, 1979. 2064
The loftiest Ephedra.
E. sive Anábasis Béllònii, &c., Tourn.
Polýgonum marítimum scándens Bauh.

4. frágilis *Desf.* ♣ Spain - - 2065
The fragile Ephedra.
E. crética Tourn.
Equisètum montànum crêticum Alp.

5. americàna *Willd.* ♣ Quito f. 1980. 2065
The American Ephedra.

Taxàceæ. ‡ ♠ ♣ ⊓ 2065

I. *TA'*XUS *L.* ♠ ♣ ⊓ 2065, 2066
THE YEW.

1. baccàta *L.* ♠ Eur. pl. 353, 354. 2066
The berried, *or common*, Yew.
Táxus No. 1663. Hall. Hist.
Ifenbaum, Ihenbaum, or Eihenbaum, Ger.
Taxo, Ital.
Texo, Span.
Varieties ♠ ✣ ⊓ - - 2066
2 fastigiàta ♠ pl. 355. fig. 1981, 1982.
T. *fastigiàta* Lindl.
T. *hibérnica*, Hook.
The upright, or Florence Court, Yew; the Irish Yew.
3 procúmbens ♣ ⊓
T. *procúmbens* Lodd. Cat.
4 erécta ♣
The upright Yew.
T. *b. fastigiàta.*
5 fòliis variegàtis *Lodd. Cat.* ♣
6 frúctu lùteo ♣
Other Varieties.

2. (b.) canadénsis *Willd.* ♣ N. Amer. 2093
The Canada, *or North American*, Yew.
T. *b. mìnor* Michx.

II. SALISBU'R*IA* Sm. ‡ 2065. 2094
THE SALISBURIA.*
Ginkgo *Kæmpf., L., and others.*

1. *a*diantifòlia *Sm.* ‡ Japan pl. 356, 357. fig. 1992, 1993. 2094
The Maiden-hair-leaved Salisburia, *or Ginkgo Tree.*
Ginkgo, Gin-an, Itsjo, *Kæmpf.*
Ginkgo *bìloba* L.
Noyer du Japon, Arbre aux quarante E'cus.

App. i. *Half-hardy Genera belonging to the Order Taxàceæ.* - 2100

Podocárpus *L'Hérit.*
P. macrophýllus *Smt.* Japan.
The long-leaved Japan Yew.
Táxus macrophýlla Thunb.
P. latifòlius *Wall.* Pundna. fig. 1995.
P. spinulòsus *Spreng.* Port Jackson
P. excélsus Lodd. Cat.
Táxus spinulosa Smith.
P. nùcifer *Pers.* Japan.
Táxus nucífera Kæmpf.
P. elongàtus *L'Hérit.* C. G. H. fig. 1997.
Táxus elongàtus Ait.
P. chilìnus *Rich.* Chili. fig. 1996.
P. coriàceus *Rich.* Island of Montserrat. fig. 1998.
P. *t*axifòlius *Kunth.* Peru. fig. 1999, 2000.
P. montànus Lodd. Cat.
Táxus montàna Willd.
P. excélsus *Lodd.*
P. neriifòlius *Lodd.*
Táxus japónica Lodd.
Dacrýdium *Solander.*
D. cupréssinum *Sol.* New Zealand. fig. 2001.
Thalàmia cupréssina Spreng.
D. *t*axifòlium *Sol.*
D. excélsum *Don.* New Zealand.
The Kahikatea, or Swamp Pine.
D. ? plumòsum *D. Don.* New Zealand.
The Kawaka of the New Zealanders.
D. elàtum *Wall.* Pulo-Penang.
Juníperus elàta Roxb.
Phyllócladis *Rich.*
Podocárpus sp. Labill.
P. rhomboidàlis *Rich.* Cape Van Diemen. fig. 2002, 2003.
Podocárpus aspleniifòlius Labill.
P. *t*richomanöìdes *R. Br.* New Zealand.
The Tanakaa of the New Zealanders.

Coníferæ, or Pinàceæ. 2103

Sect. I. *A*BIE'TINÆ *Richard.* 2104. 2106

I. *P*I'NUS *L.* ♠ ♤ ⊐ ♤ ⊔ ♠ ⌋ ✣ 2104. 2152

THE PINE.
Le Pin, Fr.
Fichte, Pynbaum, or Kiefer, Ger.
Pynboom, Dutch.
Pino, Ital. and Span.
Pinu, Anglo-Saxon.
Pinnua, Welsh.
Peigne, Erse.

Sect. i. *Bìnæ. — Leaves generally 2 in a Sheath.*

§ i. *Sylvéstres.* ♠ ✣

A. *Cones having the Scales without Prickles.*

1. sylvéstris *L.* ♠ Europe fig. 2043, 2044, 2045. 2153
The wood, *or Scotch*, Pine, *or Scotch Fir.*
P. *fòliis bìnis, &c.*, Hall.
P. *rùbra* Mill. Dict.
P. *sylvéstris commùnis* Ait.

Page
P. No. 29. Gmel.
Pin Sauvage, Pin d'Ecosse, Fr.
Gemeine Föhre, gemeine Fichte, Kiefer, Taune, and 55 other names given in Hayne's Abbildung, Ger.
Pynboom, Dutch.
Pino sylvatico, Ital.
Pino sylvéstre, Span.
Fyrre, Dan. and Swed.
Sosna, Pol., Boh., and Russ.
Varieties ♀ - - 2153
a. *Timber Trees.* 2154
1 vulgàris ♀ fig. 2046.
The common wild Pine.
2 hórizontàlis ♀
P. *horizontàlis* Don of Forfar.
P. *s. var. montàna* Sang.
? P. *rùbra* Mill. Dict. and N. Du Ham.
The Speyside Pine, Hort. Soc.
The Highland Pine, Grigor.
The horizontal-branched wild Pine, Laws.
The red-wooded Scotch Pine, Sang.
3 uncinàta *Don of Forfar* ♀ fig. 2047.
The hooked-*coned* wild Pine.
Mar Forest wild Pine, Hort. Soc. Gard.
4 haguenénsis ♀
Pin de Haguenau, Fr.
5 rigénsis ♀
Pin de Riga Desf.
Pin de Russie, Pin de Mâture, Fr.
Other Timber Tree Varieties.
b. *Varieties curious or ornamental.* 2158
6 genevénsis ♀
The Geneva wild Pine.
7 monophýlla *Hodgins.* ♀
8 scariòsa ♀
P. *scariòsa* Lodd. Cat.
9 intermèdia ♀
10 altàica *Ledebour* ♀
11 tortuòsa *Don of Forfar* ♀
Other Varieties, of curious or botanical interest.

2. (s.) pumílio *Hænke.* ⚘ ♀ Europe fig. 2057, 2058, 2063. 2186
The dwarf, *or Mountain*, Pine.
P. *sylvéstris montàna γ* Ait. Hort. Kew.
P. *s. hùmilis γ* Neal.
P. *cònis eréctis* Tourn., &c.
P. *hùmilis, &c.* Tourn.
P. *suedéticus seu carpáticus* Ungarisch Mag.
P*ináster cònis eréctis* Bauh.
P. *tatárica* Mill. in Herb. Banks.
P. *p. montànus* Park.
P. *quártus austrìacus* Clus.
Pin nain, Fr.
Krumholz, Ger.
Varieties ⚘ ♀ - - 2186
2 rubræflòra ⚘ ♀
3 Físcheri Booth. ⚘ ♀
4 *Mùghus* ⚘ fig. 2059, 2060, 2061. - - 2187
The Mugho wild Pine.
P. *s.* Mùgho *Matt. Camer.*
P. *montàna* Baum.
P. Mùgho *Jacq. Poir.*, and *N. Du Ham.*
P. *echinàta* Hort.
Page
P. *uncinàta* Dec., Lodd. Cat.
Pin Mugho, Torchepin, Pin suffis, Pin crin, Pin du Briançonnais, Pin de Montagne, Fr.
Bergfichte, Ger.
5 *M.* nàna ⚘ ♀ fig. 2062.
The Knee Pine of the Styrian Alps.
Other Varieties.

3. Banks*iàna* Lamb. ♀ North America fig. 2064, 2065, 2066, 2067. 2191
Banks's, *or the Labrador*, Pine.
P. *sylvéstris divaricàta* Ait.
P. *rupéstris* Michx.
P. *hudsónica* Lam.
Scrub Pine, Grey Pine, Hudson's Bay Pine, Ypres, Canada.

B. *Cones large, having the Scales furnished with Prickles.*

4. ìnops *Ait.* ♀ North America fig. 2068, 2069, 2070, 2071. 2192
The *Jersey, or* poor, Pine.
P. *virginiàna* Du Roi., Mill. Dict., Wangh. Beit.
Pin chétif, Fr.

5. mìtis *Michx.* ♀ North America f. 2072, 2073, 2074, 2075, 2076. 2195
The soft-*leaved, or yellow*, Pine.
P. *variábilis* Pursh; H. B., 23592.
? P. *echinàta* Mill. Dict.
New York Pine, Spruce Pine, Short-leaved Pine, Amer.

6. púngens *Michx.* ♀ North Carolina fig. 2077, 2078, 2079, 2080. 2197
The prickly-*coned, or Table Mountain*, Pine.

§ ii. *Lariciònes.* ♀

7. Larício *Poir.* ♀ Corsica fig. 2081, 2082, 2083, 2084. 2200
The *Corsican, or* Larch, Pine.
P. *sylvéstris ε marítima* Ait. Hort. Kew., ed. 1.
P. *marítima* Ait. Hort. Kew., ed. 2.
Varieties ♀ - - 2201
1 corsicàna ♀
Laricio de l'Ile de Corse, Delamarre.
2 subvíridis *N. Du Ham.* ♀
3 caramánica ♀
P. *caramánica* Bosc.
P. *caramaniénsis* Bon Jard.
? P. *romàna*, Lon. Hort. Soc. Gard.
Laricio de Caramanie, ou de l'Asie Mineure, Delamarre.
4 calábrica ♀
Laricio de Mont Sila en Calabre, Delamarre.
5 austrìaca ♀
Laricio d'Autriche, ou de la Hongrie, Delamarre.
6 pyrenàica ♀
P. *hispánica* Cook.
? P. *pyrenàica* Lap.
7 taúrica *Lodd.*
Other Varieties.

8. (L.) austrìaca *Höss.* ♀ Austria fig. 2005. 2205
The Austrian, *or black*, Pine.
P. *nígricans* Hort.
P. *nigréscens* Hort.
Schwartz Föhre, Ger.

Page
9. (L.) Pallas*iàna* Lamb. 🌲 Siberia
fig. 2086, 2087, 2088, 2089. 2206
Pallas's, *or the Tartarian*, Pine.
P. *taúrica* Hort.
P. *tatárica*, in the Hammersmith Nursery in 1797.
P. *marítima* Pall.
P. *Pínea* Habl. Taur.
P. *halepénsis* Bieb. (exclusive of the Synonymes, except those of Pall. and Habl.).
P. *Larício* Bieb. (Ditto.)
Tzaam, in the Tartar language.

10. (L.) pyrenàica *Lap.* 🌲 S. of Spain
fig. 2090, 2091, 2092, 2093. 2209
The Pyrenean Pine.
P. *hispánica* Cook's Sketches in Spain.
P*ináster hispánica* Roxas di San Clemente.
P. *penicéllus* Lap. Hist. des Plantes des Pyrénées.
P. *halepénsis májor* Annales d'Hort. de Paris.
Pin Nazaron, Pin pinceau, Fr.

11. resinòsa *Ait.* 🌲 Upper Canada
fig. 2091, 2095, 2096, 2097. 2210
The resinous, *or red*, Pine.
P. *canadénsis bifòlia cònis mèdiis ovàtis* Du Ham.
P. *rùbra* Michx.
Norway Pine, in Canada.
Yellow Pine, in Nova Scotia.
Le Pin rouge de Canada, Fr.

App. i. *Doubtful Species, apparently belonging to* § ii. *Lariciònes.* - 2213

P. canadénsis bifòlia, fòl. brevióribus et tenuióribus, *Du Ham.* 🌲
fig. 2098, 2099. 2213
Le Petit Pin rouge de Canada, Fr.

§ iii. *Pinástri.* 🌲

12. *P*ináster *Ait.* 🌲 South of Europe
fig. 2100, 2101. 2105. 2213
The Pinaster, *or Cluster*, Pine.
P. *sylvéstris* γ Lin. Syst.
P. *marítima áltera* Du Ham., Du Roi.
P. *marítima* N. Du Ham.
P. *sýrtica* Thore Prom. sur les Côtes de Gascogne.
Pin de Bordeaux, Pin des Landes, Fr.

Varieties - - - 2214
2 escarènus 🌲 Nice.
P. *escarèna* Risso.
3 Lemoni*ànus* 🌲 fig. 2102, 2103.
P. *Lemoni*àna *Benth.*
4 mìnor 🌲 France f. 2104.
P. *marítima mìnor* N. Du Ham.
Pin Pinsot, Pin de Mans, Pin à Trochet, Fr.
5 fòliis variegàtis 🌲
6 marítimus 🌲
7 chinénsis 🌲
8 nepalénsis 🌲
9 nòvus hollándicus 🌲
P. *Novæ Hollándiæ* Lodd. Cat., 1836.
P. *nòva zealándica*, in the Kew Arboretum.
10 st. helénicus 🌲
11 Massoni*ànus* 🌲
P. *Massoni*àna *Lamb.*

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13. *P*ínea *L.* 🌲 South of Europe
fig. 2106, 2107, 2108, 2109. 2224
The *Stone* Pine.
P. *sativa* Bauh., Blackw., Du Ham.
P. *doméstica* Matth.
Pin Pignon, Pin bon, Pin cultivé, Pin Pinier, Fr.
Geneissbere Fichte, Ger.

Varieties 🌲 - - 2225
? 2 frágilis *N. Du Ham.* 🌲
3 crética *Hort.* 🌲
4 americàna *Hort.* 🌲

§ iv. *Halepénses.* 🌲

14. halepénsis *Ait.* 🌲 Syria
fig. 2110, 2111, 2112, 2113. 2231
The Aleppo Pine.
P. *hierosolymitàna* Du Ham.
P. *marítima prìma* Mathiolus.
Pin de Jérusaléme, Fr.
Varieties 🌲 - - 2231
2 mìnor 🌲
3 marítima 🌲
P. *marítima* Lamb.
4 genuénsis 🌲
P. *genuénsis* Cook.

15. brùtia *Ten.* 🌲 . . . .
fig. 2114, 2115, 2116. 2234
The Calabrian Pine.
P. *conglomeràta* Græfer Pl. Exsicc.

App. i. *Species of Pine having 2 Leaves in a Sheath, which we cannot with certainty refer to any of the preceding Sections.*

P. Massoni*àna* Lamb., N. Du Ham., Willd., Laws., China 2236
? P. *nepalénsis* Cels.
P. sp. from Nepal. fig. 2117.

Sect. ii. *Ternàtæ. — Leaves* 3 *in a Sheath.* - - 2236

A. *Cones hardly so long as the Leaves; the Scales with Prickles.*

§ v. T*æ̀dæ.* 🌲

16. *T*æ̀da *L.* 🌲 North America
f. 2118, 2119, 2120, 2121, 2122. 2237
The Frankincense, *or Loblolly*, Pine.
P. *fòliis térnis* Gron. Virg.
P. *virginiàna tenuifòlia trípilis* Pluk.
White Pine, at Petersburg and Richmond, in Virginia; *Oldfield Pine*, Amer.
Pin de l'Encens, Fr.

Variety 🌲 - - 2237
2 alopecuröídea *Ait.* 🌲
The Fox-tail Frankincense Pine.

17. rígida *Mill.* 🌲 North America
fig. 2123, 2124, 2125, 2126. 2239
The rigid, *or Pitch*, Pine.
P. T*æ̀da rígida* β Ait. Hort. Kew., &c.
P. *canadénsis trifòlia* Du Ham.
? P. T*æ̀da* α Poir.
? *Three-leaved Virginian Pine, Sap Pine, Black Pine.*
Pin hérissé, Pin rude, Fr.

Page
Variety ♀ - - 2239
P. Tæda var. 2 *alopecuroidea Ait.* is by Mr. Lambert considered as a var. of *P. rígida.*

18. (r.) serótina *Michx.* ♀ N. America
fig. 2127, 2128, 2129, 2130. 2242
The late, *or Pond*, Pine.
? *Tæda alopecuröidea* Ait.

P. variábilis *Lamb.* fig. 2131. - - - 2243

§ vi. *Ponderòsa.* ♀ ♀ ⊔

19. ponderòsa *Doug.* ♀ North America
fig. 2132, 2133, 2134, 2135, 2136, 2137. showing Arceuthòbium *Oxýcedri Bieb.*, *Víscum* Oxýcedri *Dec.*, attached - - - 2243
The heavy-*wooded* Pine.

B. *Cones having the Scales hooked.*

§ vii. *Sabiniànæ.*

20. Sabini*àna* Doug. ♀ North America
f. 2138, 2139, 2140, 2142, 2143. 2246
Sabine's, *or the great prickly-coned*, Pine.

21. Coúlter*i* D. Don. ♀ Santa Lucia
fig. 2141, 2145, 2146, 2147. 2250
Coulter's, *or the great hooked*, Pine.
P. *Sabiniàna var.* Hort.
P. *macrocárpa* Lindl. MS.

22. longifòlia *Roxb.* ♀ ⊔ Nepal
fig. 2149, 2150, 2151, 2152. 2252
The long-leaved *Indian* Pine.

§ viii. *Gerardiàna.* ♀ ⊔

23. Gerard*iàna* Wall. ♀ ⊔ East Indies
fig. 2153, 2154, 2155. 2254
Gerard's, *or the short-leaved Nepal*, Pine.
P. Neòsa *Govan.*
Eatable-seeded Pine of the East Indies.
? *Chilghòza* Elphinstone.

C. *Cones long, slightly tubercled.*

§ ix. *Austràlis.* ♀

24. austràlis *Michx.* ♀ United States
f. 2156, 2157, 2158, 2159, 2160. 2255
The southern Pine.
P. *palústris* Willd., Mill., Ait., Ph., Lamb.
P. *americàna palústris, &c.*, Hort.
P. *serótina* Hort.
Long-leaved Pine, Yellow Pine, Pitch Pine, Amer.
Broom Pine, Southern States.
Southern Pine and *Red Pine*, Northern States.
Yellow Pine, Pitch Pine, Middle States.
Georgia Pitch Pine of the Timber Merchants in England and the West Indies.
Variety - - 2255
2 excélsa ♀ North America.
P. *palústris excélsa* Booth.

§ x. *Canariénsis.* ♀ ⊔

Page
25. canariénsis *C. Smith.* ♀ Canaries
f. 2162, 2163, 2164, 2165, 2166. 2261
The Canary Pine.
? P. *adúnca* Bosc.

26. sinénsis *Lamb.* ♀ ⊔ China
fig. 2167, 2168, 2169. 2264
The Chinese Pine.

27. insígnis *Doug.* ♀ California
fig. 2170, 2171, 2172. 2265
The remarkable Pine.

28. *Teocòte* Schiede et Deppe ♀ ⊔ Mount Orizaba - fig. 2173, 2174. 2266
The Teocote, *or twisted-leaved*, Pine.

29. pátula *Schiede et Deppe MSS.* ♀ ⊔ Mexico - fig. 2175, 2176. 2267
The spreading-*leaved* Pine.

§ xi. *Llaveàna.* ♀

30. Llave*àna* Otto. ♀ Mexico
fig. 2177, 2178, 2179, 2180. 2267
La Llave's Pine.

App. i. *Species of 3-leaved Pines which cannot with certainty be referred to any of the preceding Sections, but of which there are living Plants in England.* - 2268

31. californiàna *Lois.* ♀ ⌋ California
2268
The Californian Pine.
P. *montereyénsis* Godefroy.
P. *adúnca* Bosc.
P. *montheragénsis* Hort. Soc. Gard.
Pin de Monterey Bon Jard.

Fràser*i* Lodd. Cat. - - - 2269
timoriénsis *Hort.* Timor - - 2269

App. ii. *Pines supposed to have 3 Leaves, but of which the Cones only have been seen in Britain. The Cones are hooked or tubercled.* - - - - 2269

32. muricàta *D. Don.* ♀ ⌋ California
fig. 2180. 2269
The *smaller* prickly-*coned* Pine.
Obispo, Span.

33. tuberculàta *D. Don.* ♀ ⌋ California
fig. 2181. 2270
The tuberculated Pine.

34. radiàta *D. Don.* ♀ ⌋ California
fig. 2182. 2270
The radiated-*scaled* Pine.

Sect. iii. *Quinæ. — Leaves 5 in a Sheath.*

§ xii. *Occidentàles.* ♀ ⊐ ♀ ⊔

35. occidentàlis *Swartz.* ♀ ⊐ West Indies
fig. 2183. 2271
The West-*Indian* Pine.
P. *foliis quinis, &c.*, Plum. Cat., &c.
Lárix americàna Tourn.

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36. Montezùmæ Lamb. ⫯ ⌴ Mexico fig. 2184, 2185. 2272
Montezuma's, *or the rough-branched Mexican*, Pine.
P. *occidentàlis* Kunth, Deppe in Schl. Lin.

§ xiii. *Leiophýlla.* ⫯ ⌴

37. leiophýlla *Schiede et Deppe MSS.* ⫯ ⌴ Mexico f. 2186, 2187, 2189. 2273
The smooth-leaved Pine.

§ xiv. Cémbræ. ⫯

38. *Cémbra* L. ⫯ Switzerland f. 2188, 2189, 2190, 2191, 2192. 2274
The Cembran Pine.
P. *fòliis quìnis, &c.*, Gmel., &c.
P. *satìva* Amm. Ruth.
P. *sylvéstris, &c.*, Bauh.
P. *sylvéstris* Cémbro *Cam. Epit.*
Làrix sempervìrens, &c., Breyn.
Pináster Aleùo, &c., Bell. Conif.
Tæ`da árbor, Cémbro *Italòrum*, Dale.
Aphernousli Pine, Five-leaved Pine, the Siberian Stone Pine, the Swiss Stone Pine.
Aroles, in Savoy.
Alvies, in Switzerland.
Cembra, in Dauphiné.
Ceinbrot, Eouve, Tinier, Fr.
Zürbelkiefer, Ger.
Kedr, Russ. (See *Pall. Fl. Ross.*)
Varieties ⫯ - - 2275
1 sibírica ⫯
The Siberian *Stone* Pine, *or* Siberian *Cedar.*
P. Cémbra *Lodd. Cat.*
Kedr, Pall.
2 pygmæ`a ⫯
P. C. *pùmila* Pall. Ross.
Slanez, Russ.
3 helvética *Lodd. Cat.* ✽
The Swiss Cembran, *or Stone*, Pine.

§ xv. *Stròbi.* ⫯

39. *S*tròbus *L.* ⫯ North America fig. 2193, 2194, 2195, 2196. 2280
The Strobus, *or Weymouth*, Pine.
P. *fòliis quìnis, &c.*, Gron.
P. *canadénsis quinquefòlia* Du Ham.
P. *virginiàna* Pluk.
Làrix canadénsis Tourn.
New England Pine, White Pine, Pumpkin Pine, Apple Pine, Sapling Pine, Amer.
Pin du Lord, Pin du Lord Weymouth, Fr.
Varieties ⫯ - - 2280
2 álba *Hort.* ⫯
3 brevifòlia *Hort.* ⫯
4 compréssa *Booth.*
Floetbeck Weymouth Pine.
P. S. *nòva* Lodd. Cat., ed. 1836.

40. *P.* (*S.*) excélsa *Wallich* ⫯ Nepal fig. 2197, 2198, 2199. 2285
The lofty, *or Bhotan*, Pine.
P. *Dicksònii Hort.*
Chilla, or Chylla, Himalayas.
Kucl, Sirmone and Gurhwal.
Lemshing, Bhotea.
Raesula, or King of the Firs, Hindostan.

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41. (*S.*) Lambert*iàna* Dougl. ⫯ N. Amer. fig. 2203. 2207. 2288
The *gigantic, or* Lambert's Pine.

42. (*S.*) montícola *Dougl.* ⫯ Columbia fig. 2208, 2209. 2291
The Mountain, *or short-leaved Weymouth*, Pine.

App. i. *Species of Pine which are not yet introduced, and of which little is known.* 2292

P. contórta *Dougl.* N. W. Amer. figs. 2210, 2211.
The twisted-*branched* Pine.
P. squamòsa *Bosc.* Lower Alps.
? P. *sylvéstris var.*
P. turbinàta *Bosc.* N. Amer.

II. *A`BIES D. Don.* ⫯ ✽ ⩩ 2105. 2293
THE SPRUCE FIR.
P*ì*nus of L. and others, in part.
Pícea Lk.
Picea of the ancients.
Sapin épicea, Fr.
Fichtenbaum, Ger.
Abiete, Ital.
Abieto, Span.

§ i. *Leaves tetragonal, awl-shaped, scattered in insertion.* D. Don.

1. excélsa *Dec.* ⫯ Norway f. 2212. 2293
The lofty, *or Norway*, Spruce Fir.
A. *commùnis* Hort.
A. P*ícea* Mill., Michx.
A. *fòliis solitàriis, &c.*, Hort. Cliff., &c., Hall.
P. A`*bies* L. Sp. Pl., &c.
P. P*ícea* Du Roi.
P. *excélsa* Lam.
Common Spruce, Prussian Fir.
Faux Sapin, E'picea, Sapin-Pesse, Serente, Sapin gentil, Pinesse, Fr.
Lafie, in the Vosges.
Gemeine rothe Tanne, Ger.
Varieties ⫯ ✽ ⩩ - - 2294
1 commùnis ⫯
The common Spruce, *or White Fir of Norway.*
2 nìgra ⫯ fig. 2213.
The black-*leaved* Spruce, *or Red Fir of Norway.*
3 carpática ⫯
The Carpathian Spruce Fir.
A. *carpática* Hort., and Hort. Brit.
4 péndula ⫯
The pendulous-*branched, or weeping, Norway* Spruce Fir.
A. *commùnis péndula* Booth.
P*ì*nus A`*bies péndula* Lodd. Cat.
5 fòliis variegàtis ⫯
Blotched-leaved Spruce Fir.
P*ì*nus A`*bies fòliis variegàtis* Lodd. Cat.
6 Clanbrasil*iàna* ✽
Lord Clanbrasil's Spruce Fir.
P. *Clanbrasil*iàna *Lodd. Cat.*
7 Clanbrasil*iàna* stricta ✽
Upright-*growing Lord* Clanbrasil's Spruce Fir.
8 pygmæ`a ⩩
The pygmy Spruce Fir.
A. *nàna* Lond. Hort. Soc. Gard.
A. *élegans* Sm. of Ayr.
9 tenuifòlia ✽
The slender-leaved Spruce Fir.
A. *tenuifòlia* Sm. of Ayr.

Page
10 gigantêa ♣
The gigantic Spruce Fir.
A. *gigantèa* Sm. of Ayr.
11 monstròsa ●
The monstrous Spruce Fir.
A. *monstròsa* Hort.
Other Varieties. - - 2295

2. álba *Michx.* ♣ N. Amer. f. 2224. 2310
The white Spruce Fir.
P*ìnus álba* Ait., W., Lamb.
P*ìnus láxa* Ehrh.
P*ìnus canadénsis* Du Roi.
A*'bies Pícea fòliis, &c.*, Hort. Angl., Duh.
A. *curvifòlia* Hort.
Single Spruce, Amer.
E'pinette blanche, Fr.
Sapinette blanche, Fr.

Variety ♣ - - 2311
2 nàna *Dickson* ♣
Other Varieties.

3. nìgra *Ait.* ♣ North America
fig. 2225, 2226, 2227. 2311
The black Spruce Fir.
P*ìnus nìgra* Ait., W., Lamb., Du Roi.
P*ìnus mariàna* Ehr.
A*'bies mariàna* Wangh.
Double Spruce.

4. (n.) rùbra *Poir.* ♣ Nova Scotia
fig. 2228. 2316
The red Spruce Fir, *or Newfoundland red Pine.*
P*ìnus americàna rùbra* Wangh.
P*ìnus rùbra* Lamb.

Variety ♣ - - 2316
2 cærùlea ♣
A. *cærùlea* Booth.

5. Smith*iàna* Wall. ♣ Himalayas
fig. 2229. 2317
Smith's, *or the Himalayan*, Spruce Fir.
P*ìnus Smith*iàna *Wall.*, *Lamb.*
P*ìnus* Khùtrow *Royle.*
A. Morínda *Hort.*
Raga, or Raggoe, in the Parbutee language.
Varieties - - 2317

6. (? e.) orientàlis ♣ Trebisonde - 2318
The Oriental Spruce Fir.
P*ìnus orientàlis* Lamb., L., Vitman.

§ ii. *Leaves flat, generally glaucous beneath, imperfectly 2-rowed.*

7. Douglàs*ii* Lindl. ♣ North America
fig. 2230. 2319
Douglas's, *or the trident-bracted*, Spruce Fir.
P*ìnus taxifòlia* Lamb., Pursh.
A. *califórnia* Hort.
P*ìnus Douglàs*ii *Sabine MSS.*, *Lamb. Pin.*, iii. 90.
The Nootka Fir, Sm. in Rees's Cyc.
Varieties ♣ - - 2319
2 *taxifòlia* ♣
The Yew-leaved *trident-bracted* Spruce Fir.

8. Menzièsi*i* Dougl. ♣ California
fig. 2232. 2321
Menzies's, *or the warted-branched*, Spruce Fir.
P*ìnus Menzièsii Lamb.*

9. canadénsis *L.* ♣ N. America - 2322
The Canada *Pine, or Hemlock* Spruce Fir.
P*ìnus canadénsis* L.
P*ìnus americàna* Du Roi, Ait., Lamb., Sm.
P*ìnus* A*'bies americàna* Marsh.
Perusse, by the French in Canada.
Sapin du Canada, Fr.
Schierlings Fichte, Ger.

10. dumòsa *Lamb.* ♣ Nepal
fig. 2233, 2234. 2325
The bushy *alpine* Spruce Fir.
P*ìnus dumòsa* Lamb.
A. *Brunoniàna Lindl. in Penny Cyc.*
P*ìnus decídua* Wall. MSS.
P*ìnus Brunoniàna Wall. Pl. As. Rar.*

11. cephalónica ♣ Cephalonia
fig. 2235, 2236. 2325
The Cephalonian *Silver* Spruce Fir.
Koukounaria, and also Elatos, in Cephalonia.
A. *taxifòlia* Hort.
A. *luscombeàna* Hort.
The Mount Enos Fir.

App. i. *Species of* A*'bies of which little more is known than their Names.* - 2329

A. obovàta *D. Don. MS.* Altai Mountains.
Pícea obovàta Led.
? A. *Smith*iàna *var.* D. Don.
A. Mertensi*àna* Bong. N. Amer.
A. sitchénsis *Bong.* N. Amer.
A. trigòna *Raf.* Oregon country.
A. heterophýlla *Raf.* Oregon country.
A. aromática *Raf.* Oregon country.
A. microphýlla *Raf.* Oregon country.
A. obliquàta *Raf.* Oregon country.
A. falcàta *Raf.* Oregon country.
A. hirtélla *Thunb.*
A. Kæmpfèrii Thunb.
A. Thunbérgii Thunb.
A. Mórni Sieb.
A. Tordno Sieb.
A. Araràgi Sieb.

III. PI'CEA *D. Don.* ♣ - 2105. 2329
THE SILVER FIR.
P*ìnus* L., in part.
A*'bies* Link, Nees Von Esenbeck, and Led.
A*'bies* Du Roi, in part.
Sapin, Fr.
Tannen, Ger.

1. pectinàta ♣ Europe f. 2237, 2238. 2329
The comb-like-*leaved* Silver Fir.
A*'bies* of Pliny.
P*ìnus Pícea* L., &c.
P*ìnus* A*'bies* Du Roi.
A*'bies álba* Mill. Dict., &c.
A*'bies Táxi fòlio* Tourn., &c.
A*'bies vulgàris* Poir.
A*'bies pectinàta* Dec., Duh.
A*'bies taxifòlia* Hort. Par.
A*'bies Pícea* Lindl. in Penny Cyc.
A*'bies excélsa* Lk.
Spanish Fir.
Sapin commun, Sapin à Feuilles d'If, Sapin blanc, Sapin argenté, Sapin en Peigne, Sapin de Normandie, Fr.
Weiss Tanne, Edeltanne, Ger.
Varieties ♣ - - 2330
2 tortuòsa ♣
The twisted-*branched* Silver Fir.
3 fòliis variegàtis ♣
The variegated-leaved Silver Fir.
4 cinèrea ♣
The cinereous Silver Pine.
P*ìnus Pícea cinèrea* Baum.

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2. (p.) *Píchta* ♀ Altai Mountains 2338
The Pitch Silver Fir.
Pìnus Píchta *Lodd. Cat.*
Pìnus sibírica Hort.
A'*bies sibírica* Led., Lindl. in Penny Cyc.
A'*bies* Píchta *Fischer.*
Píchta, Russ.

3. balsàmea *L.* ♀ North America fig. 2240, 2241. 2339
The Balm *of Gilead, or American*, Silver Fir.
Pìnus balsámea L., &c.
A'*bies balsámea* Marsh.
A'*bies* Táxi *fòlio, &c.*, Hort. Angl., &c.
A'*bies balsamífera* Michx.
Balsam Fir.
Le Beaume de Giléad, le Sapin Baumier de Giléad, Fr.
Balsam Fichte, Balsam Tanne, Ger.

Variety ♀ - - 2339
2 longifòlia *Booth.* ♀
The long-leaved Balm *of Gilead* Silver Fir.

4. (b.) Fràser*i* Ph. ♀ Carolina fig. 2243, 2244. 2340
Fraser's, *or the double Balsam*, Silver Fir.
*Pìnus Fráser*i *Ph., Lamb.*
A'*bies Fráser*i *Lindl. in Penny Cyc.*

5. grándis *Dougl.* ♀ N. W. America fig. 2245, 2246. 2341
The great Silver Fir.
Pìnus grándis Dougl. MS., Lamb.
A'*bies grándis* Lindl. in Penny Cyc.
The great Californian Fir.

6. amábilis *Dougl.* ♀ ? California fig. 2247, 2248. 2342
The lovely Silver Fir.
Pìnus amábilis Dougl. MS.

7. nóbilis *Dougl.* ♀ North America fig. 2249, 2250. 2342
The noble, *or large-bracted*, Silver Fir.
Pìnus nóbilis Dougl. MS., Lamb.
A'*bies nóbilis* Lindl. in Penny Cyc.

8. Webb*iàna* Wall. ♀ Nepal fig. 2251. 2252, 2253. 2344
Webb's *purple-coned* Silver Fir.
*Pìnus Webb*iàna *Wall., Lamb. Pin.*
Pìnus spectábilis Lamb. Monog.
A'*bies Webb*iàna *Lindl. in Penny Cyc.*
Chilrow, and the Oonum, or purple-coned Fir, in the Himalayas.

9. *Píndrow* Royle ♀ Kamaon fig. 2254, 2255. 2346
The Pindrow, *or tooth-leaved*, Silver Fir.
Pìnus Píndrow *Royle, Lamb.*
*Táxus Lambert*iàna *Wall. Cat.*
Pindrow, and sometimes Morinda, in the Himalayas.

10. bracteàta *D. Don.* ♀ California fig. 2256. 2348
The *leafy*-bracted Silver Fir.
Pìnus bracteàta Lin. Trans., Lamb.
Pìnus venústa Dougl. in Comp. to Bot. Mag.

11. religiòsa *H. et K.* ♀ Mexico fig. 2257. 2349
The sacred *Mexican* Silver Fir.
Pìnus religiòsa Humb. et Kunth, &c.
A'*bies religiòsa* Lindl. in Penny Cyc.

? *P.* hirtélla - - - - - - 2349
A'*bies hirtélla* Lindl. in Penny Cyc.
Pìnus hirtélla Thunb. et Kunth.

IV. *LA'RIX Tourn.* ‡ ■ 2105. 2350

THE LARCH.
Pìnus L. and others.
A'*bies* Rich.
Melèze, Fr.
Lerchenbaum, Ger.
Laricio, Ital.

1. europæ'a *Dec.* ‡ South of Europe fig. 2258. 2350
The European, *or common, Larch.*
Pìnus Lárix L., &c.
A'*bies* Lin. Hort. Cliff.
Lárix decídua Mill. Dict.
Làrix fòlio decíduo, &c., Bauh.
Lárix Bauh. Pin., Dod., Cam.
A'*bies Lárix* Lam.
Melèze commune, Fr.
Lörche, Lorcher-Fichte, Gemeiner Lerchenbaum, Terbentinbaum, Europäische Ceder, Weisser Lerchenbaum, Ger.

Varieties ‡ ■ - - 2350
1 commùnis *Laws.* ‡
The common European Larch.
2 láxa *Laws.* ‡
The loose-*headed* European Larch.
3 compácta *Laws.* ‡
The compact, *or crowded-branched*, Larch.
4 péndula *Laws.* ‡
The weeping-*branched* European Larch.
The weeping Larch from the Tyrol, Hort. Trans.
5 rèpens *Laws.* ‡
The creeping-*branched* European Larch.
6 flòre rùbro ‡
The red, *or pink*, flowered *common* Larch.
7 flòre álbo ‡
The white-flowered Larch *from the Tyrol.*
8 sibírica ‡
The Russian Larch.
L. *sibírica* Fisch.
? L. *archangélica* Laws.
L. *róssica* Sab.
Pìnus L. *sibírica* Lodd. Cat.
9 dahùrica ■ ‡
The Dahurian Larch.
L. *dahùrica* Laws.
10 intermèdia ‡
The intermediate, *or Altaian*, Larch.
L. *intermèdia* Laws.
Pìnus intermèdia Lodd. Cat.

Other Varieties - - 2353
L. Fràser*i* Comp. to Bot. Mag.

2. americàna *Mx.* ‡ N. America 2399
The American Larch.
Pìnus larícina Du Roi.
Pìnus microcárpa W.
A'*bies microcárpa* Poir.
Hackmatack, Amer.
Tamarack, by the Dutch in New Jersey.
E'pinette rouge, in Canada.

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Varieties ♆ - - 2400

1 rùbra ♆
The *small* red-*coned* American Larch.
L. *microcárpa* Laws.
P*ìnus microcárpa* Pursh, Lodd. Cat.
E'pinette rouge, Canada.

2 péndula ♆
The *black* pendulous-*branched* American Larch.
L. *péndula* Laws.
P*ìnus péndula* Ait., &c.
P*ìnus intermèdia* Du Roi.
P*ìnus Làrix nìgra* Marsh.
A'*bies péndula* Poir.
Tamarack, Amer.

3 prolífera ♆
The proliferous-*branched* Larch.
L. *prolífera* Malcolm.

V. *CE'DRUS Barrel.* ♀ ✱ 2105. 2402
The Cedar.
P*ìnus* L., in part.
A'*bies* Poir., in part.
L*àrix* Tourn., in part.
Cèdre, Fr.
Ceder, Ger.

1. Libàni *Barr.* ♀ Mount Lebanon fig. 2267. 2402
The Cedar of Lebanon.
P*ìnus Cèdrus* L. and others.
P*ìnus fòliis fasciculàtis, &c.*, Du Roi.
L*àrix Cèdrus* Mill. Dict.
L*àrix orientàlis* Tourn., Duh.
C*èdrus mágna* Dod.
C. *conífera* Bauh., Ray.
C. *phœnícea* Renealm.
C*èdrus* Bell.
A'*bies Cèdrus* Poir., N. Du Ham., Lindl.

Varieties ♀ ✱ - - 2402

2 fòliis argénteis ♀
The silvery-leaved

3 nàna ♀ ✱
The dwarf Cedar.

Other Varieties.

2. *Deodàra* Roxb. ♀ Nepal fig. 2283, 2284, 2285, 2286. 2428
The Deodara, *or Indian*, Cedar.
P*ìnus* Deodàra *Lamb.*
A'*bies* Deodàra *Lindl.*
Devadara, or Deodara, Hindostanee.
The sacred Indian Fir.

Varieties, or nearly allied Species 2429
Shinlik, Moorcroft. Forests of Ladakh.
Christa rooro, Moorcroft. Forests of Ladakh.

VI. ARAUCA'RIA *R. et P.* ♀ 2105. 2432
The Araucaria.
Eutássa Sal.
Colymbèa Sal.
Dombèya Lamb.
Cupréssus Forst.
The southern Pine.

1. imbricàta *Pav.* ♀ Chili fig. 2286. 2293. 2432
The imbricate-*leaved* Araucaria, *or Chili Pine.*
A. *Dombèyi Rich., Lindl. in Penny Cic.*
P*ìnus Araucària* Mol.
Dombèya chilénsis Lam.
Pino de Chili, Span.
Peghuen, in the Andes.
Sir Joseph Banks's Pine.

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2. brasiliàna *Rich.* ♀ Brazils fig. 2294, 2295, 2296. 2439
The Brazil Araucaria, *or Brazil Pine.*

3. excélsa *Ait.* ♀ Norfolk Island fig. 2297. 2301. 2440
The lofty Araurаria, *or Norfolk Island Pine.*
Eutássa heterophýlla Sal.
Cupréssus columnàris, &c., Forst.
Dombèya excélsa Lamb.
Altíngia excélsa Loud. Hort. Brit.
Pin de Norfolk, Fr.

4. Cunninghàm*ii* Ait. ♀ New Holland fig. 2303. 2305. 2443
Cunningham's Araucaria, *or the Moreton Bay Pine.*
Altíngia Cunninghàmii G. Don, in Loud. Hort. Brit.

VII. CUNNINGHA'M*IA* R. Br. ♀ ⊔ 2105. 2445
The Cunninghamia.
P*ìnus* Lamb.
Bèlis Salisb.

1. sinénsis *Rich.* ♀ ⊔ China fig. 2306, 2307. 2445
The Chinese Cunninghamia, *or broad-leaved Chinese Fir.*
Bèlis jaculifòlia Salisb.
P*ìnus lanceolàta* Lamb.
A'*bies màjor sinénsis, &c.*, Pluk.
Cunninghàmia lanceolàta R. Br.
Araucària lanceolàta Hort.

VIII. *DA'MMARA* Rumph. ♀ ⊔ 2105. 2447
The Dammar, *or Amboyna*, Pine.
P*inus* Lamb.
A'gathis Sal.

1. orientàlis *Lamb.* ♀ ⊔ Amboyna fig. 2308, 2309. 2447
The Oriental Dammar Pine, *or Amboyna Pitch Tree.*
P*ìnus* Dámmara *W., Lamb., Ait.*
Dámmara *álba* Rumph.
A'gathis loranthifòlia Sal. in Lin. Trans.
A. Dámmara *Rich.*
A'rbor javanénsis, &c., Ray.

2. austràlis *Lamb.* ♀ ⊔ New Zealand fig. 2310, 2311. 2448
The Southern Dammar, *or Kauri*, Pine.
A'gathis austràlis Lindl.
Cowrie Tree, New Zealand Pitch Tree, Kowrie Pine.

App. i. *A tabular View of the principal Pinetums, or Collections of Abiétinæ, in Europe.* - - - - 2449

Sect. II. Cupre'ssinæ. - 2453
♀ ♀⊔ ♀⊔ ✱

IX. *THU'JA L.* ♀ ♀⊔ ♀⊔ ✱ 2105. 2454
The Arbor Vitæ.
Thuya, or Arbre de Vie, Fr.
Lebensbaum, Ger.

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§ i. *Thùjæ vèræ* D. Don.

1. occidentàlis *L.* 🌳 Canada fig. 2312. 2314. 2454
The western, *or American*, Arbor Vitæ.
Thùja Theophrásti Bauh.
A'rbor Vitæ Clus.
White Cedar, Amer.
Cèdre américain, Cèdre blanc, Arbre de Vie, Fr.
Gemeiner Lebensbaum, Ger.
Albero de Vita, Ital.

Varieties 🌳 - - 2454
2 variegàta 🌳
The variegated-*leaved* Arbor Vitæ.
T. *o. fòliis variegàtis* Lodd. Cat.
3 odoràta *Marsh.* 🌳
The sweet-scented Arbor Vitæ.

2. (o.) plicàta *Donn.* 🌳 ✱ N. Amer. 2458
The plicate, *or Nee's*, Arbor Vitæ.

3. chilénsis *Lamb.* 🌳 ⊔ Chili - 2458
The Chili Arbor Vitæ.
Cupréssus thyöìdes Pavon MSS.

§ ii. *Biòta* D. Don.

4. orientàlis *L.* 🌳 China fig. 2215. 2459
The Oriental, *or Chinese*, Arbor Vitæ.

Varieties 🌳 ✱ - - 2459
2 strícta *Hort.*
The fastigiate Arbor Vitæ.
T. *pyramidàlis* Bauh. Cat.
3 tatárica ✱
The Tartarian Arbor Vitæ.
T. *tatárica* Lodd. Cat.

§ iii. *Cyparíssa* D. Don.

5. cupressöìdes *L.* 🌳 ⊔ C. G. H. fig. 2316. 2460
The Cypress-like, *or African*, Arbor Vitæ.
T. *aphýlla* Burm.

6. pénsilis *Lamb.* 🌳 ⊔ China - 2460
The pensile Arbor Vitæ.

7. péndula *Lamb.* 🌳 Tartary fig. 2317, 2318. 2461
The pendulous-*branched, or weeping*, Arbor Vitæ.

App. i. *Species not sufficiently known to be referred to any of the preceding Sections.*

T. dolobràta *Lin. Suppl., Thunb., W., Lamb.* Japan - 2162
Quai, *vulgo* Fi no ki, *and* Ibuki, *Kæmpf.*
Other Species

X. CA'LLITRIS *Vent.* 🌳 2105. 2462
The Callitris.
Thùja L., in part.
Fresnèlia Mirbel.

Page

1. quadriválvis *Vent.* 🌳 Barbary fig. 2319. 2462
The four-valved Callitris.
Thùja articulàta Desf.
Cupréssus frúctu quadriválvi Shaw.
Thùja stróbilis tetragònis, &c., Vahl.

C. Fothergíll*i* 🌳 - - - - 2464
? *Cupréssus Fothergíllì.*
C. tríquetra 🌳 C. G. H. - - - 2464
Cupréssus tríquetra Lodd. Cat.
C. cupressifórmis *Vent.* 🌳 N. Holl. - - 2464
C. macrostàchya *Hort.* 🌳 - - 2464

App. i. *Species of Cállitris Natives of Australia, and not yet introduced into Britain.*

C. rhomböídea *R. Br.* 🌳 N. Holl. - - - 2464
C. oblónga *Rich.* 🌳 Pt. Jackson - - - - 2464
C. fruticósa R. Br.

XI. CUPRE'SSUS *L.* 🌳 ✱ 2105. 2464
The Cypress.
Cyprès, Fr.
Cypresse, Ger.
Cipresso, Ital.
Ciproste, Port.
Cypros, Hungarian.

1. sempervìrens *L.* 🌳 S. Europe fig. 2320. 2464
The evergreen, *or common*, Cypress.
C. *pyramidàlis* Hort.
Cyprès pyramidal, Cyprès ordinaire, Fr.
Gemeine Cypressenbaum, Ger.
The Italian Cypress.

Varieties 🌳 - - 2465
1 strícta *Mill. Dict.*
Cyprès mâle, Fr.
2 horizontàlis *Mill. Dict.*
C. *horizontàlis* N. Du Ham.
C. *expánsa* Hort. Par.

2. thyöìdes *L.* 🌳 N. Amer. f. 2327. 2475
The Thuja-like Cypress, *or White Cedar.*
C. *nàna mariàna, &c.*, Pluk.
Thùja sphæröidàlis, Rich.
Cyprès faux Thuja, Fr.

Variety 🌳 - - 2475
2 fòliis variegàtis 🌳

3. lusitánica *Tourn.* ✱ Goa f. 2328. 2477
The Portuges Cypress, *or Cedar of Goa.*
C. *glaúca* Brot.
C. *péndula* L'Herit., ? not of Thunb.
Cedar of Bussaco.

4. torulòsa *Lamb.* 🌳 Nepal fig. 2329. 2331. 2478
The twisted, *or Bhotan*, Cypress.

5. péndula *Thunb.* China fig. 2332. 2334. 2479
The weeping Cypress.

App. i. *Kinds of Cupréssus of which there are Plants in British Gardens, but of which very little is known.* - - - 2480

C. horizontàlis *Audibert.*
C. expánsa *Audibert.*
? C. *expánsa* Hort. Par.
C. Fothergílli Lee.
C. thurífera *Hort. Soc. Gard.*
C. Tournefórtii Audibert.
C. baccifórmis *Willd.*
C. austràlis *Pers.*

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App. ii. *Kinds of Cupréssus not yet introduced.* - - 2480

C. nootkaténsis *Lamb.*
C. japónica *Thunb.*

XII. TAXO'DIUM *Rich.* ☨ ♀ ♀ ⊔ 2105. 2480
THE TAXODIUM, *or Deciduous Cypress.*
Cupréssus L.
Schubértia Mirb.
Condylocárpus Salisb.

1. dístichum *Rich.* ☨ N. Amer. f. 2335. 2481
The two-ranked-*leaved* Taxodium, *or Deciduous Cypress.*
Cupréssus dísticha L., &c.
Cupréssus americàna Cat. Carol.
Cupréssus virginiàna Comm. Hort.
Schubértia dísticha Mirb.
Bald Cypress, Cypress, Amer.
Cyprès de l'Amérique, Cyprès chauve, Fr.
Zweyzeilige Cypresse, Ger.
Varieties ☨ - - 2481
1 pàtens *Ait.* ☨
2 nùtans ☨ fig. 2336—2338.
The long-leaved Deciduous Cypress.
T. d. péndulum Lond. Hort. Brit.
3 excélsum *Booth.* ☨
4 sinénse ☨
T. sinénse Noisette.
5 sinénse péndulum ☨
T. sinénse péndulum Hort.

T. sempervìrens *Lamb.* ♀ N. Am. figs. 2339, 2340. 2487
The evergreen Taxodium.
T. capénse ♀ ⊔ C. G. H. - - 2487
The Cape, *or African,* Taxodium.
Cupréssus juniperöides. L.

XIII. JUNI'PERUS *L.* ♀ ♀ ⊔ ✱ ⌓ 〰 2106. 2487
THE JUNIPER.
Sabìna Bauh.
Cèdrus Tourn.
Genévrier, Fr.
Wachholder, Ger.

§ i. *Oxýcedri.—Leaves spreading in the adult Plants.* D. Don.

1. communis *L.* ✱ Europe, America, and Asia - fig. 2343, 2344. 2489
The common Juniper.
J. No. 1661 *a.*, Hall.
J. *vulgàris, &c.*, Ray, &c.
J. *mìnor* Fuchs, Dalech.
J. *commùnis saxátilis* Pall.
J. *alpìna* Clus.
J. *mìnor montàna* C. Bauh.
Genévrier commun, Fr.
Gemeiner Wachholder, Ger.
Varieties ✱ - - 2489
1 vulgàris *Park.* ✱
J. v. fruticòsa Bauh.
J. c. eréctis Pursh.
2 suécica *Mart.* ✱ fig. 2343.
The Swedish, *or true,* Juniper.
J. *suécica* Mill. Dict.
J. *vulgàris árbor* Bauh.

Page
3 nàna *Willd.* ✱ fig. 2344.
J. *commùnis β* Fl. Br., &c.
J. *c. saxátilis* Pall.
J. No. 1661. Hall.
J. *alpìna* Ray, &c.
J. *alpìna mìnor* Ger. Emac.
J. *mìnor montàna, &c.*, Bauh., N. Duh.
J. *nàna* Sm. Eng. Fl.
J. *sibírica* Hort.
J. *daùrica* Hort.
J. *c. montàna* Ait.
4 oblónga ✱ fig. 2346.
J. *oblónga* Hort.
5 oblónga péndula ✱ fig. 2345.
6 canadénsis ✱ fig. 2347.
J. *canadénsis* Lodd. Cat.
7 depréssa *Pursh.* ✱
J. *canadénsis* Lodd. Cat.
Other Varieties.

2. Oxýcedrus *L.* ✱ Spain, Portugal, and France - fig. 2351, 2352. 2494
The Sharp Cedar, *or brown-berried,* Juniper.
J. *màjor* Cam. Epit.
J. *m. monspeliénsium* Lob. Ic.
J. *phœnícea, &c.*, J. Bauh.
J. *màjor, &c.*, C. Bauh., &c.
Cèdrus phœnícea Matth.
Oxýcedrus Clus.
Oxýcedrus phœnícea Dod.
The prickly Cedar.
Le Cade, Fr.
Spanische, Ger.

3. macrocárpa *Sm.* ✱ Greece f. 2353. 2494
The large-fruited Juniper.
J. màjor, báccâ cærùleâ, Tourn.

4. drupàcea *Lab.* ✱ ⌓ Syria fig. 2354, 2356. 2495.
The drupaceous, *or large-fruited,* Juniper.

5. virginiàna *L.* ♀ North America fig. 2357. 2495
The Virginian Juniper, *or Red Cedar.*
J. *màjor americàna* Ray.
J. *máxima, &c.*, Sloane.
Varieties ♀ - - 2495
2 hùmilis *Lodd. Cat.* ⌓
3 caroliniàna ♀
J. caroliniàna Du Roi.
Other Varieties

6. bermudiàna *L.* ♀ Bermudas fig. 2357. 2498
The Bermudas Cedar.
Cèdrus Bermùdæ Ray's Letters.

J. nepalénsis *Hort.* - - 2499
Cupréssus nepalénsis Hort.

§ ii. *Sabìnæ.—Leaves of the adult Plant imbricated.* D. Don.

7. Sabìna *L.* ✱ Spain, &c. fig. 2359—2363. 2499
The common Savin.
Varieties ✱ 〰 - - 2499
1 cupressifòlia *Ait.* ✱ fig. 2359.
The Cypress-leaved Savin.
J. *lusitánica* Mill. Dict.
Sabìna Dod.
Sabìna fòlio Cupréssi Bauh., Duh., Ray.
La Sabine mâle, Fr.

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2 tamariscifòlia *Ait.* ❋ fig. 2360.
The Tamarisk-leaved, *or berry-bearing*, Savin.
Sabìna fòlio Tamarìsci Dioscórìdis Bauh.
J. *Sabìna* Mill. Dict.
La Sabine femelle, Fr.
3 fòliis variegàtis *Mart.*
4 prostràta ❋ fig. 2361, 2362.
J. *prostràta* Michx.
J. *rèpens* Nutt.
J. *hudsónica* Lodd. Cat.
5 alpìna ⌙ fig. 2363.
J. *alpìna* Lodd. Cat.

8. däùrica *Pall.* ⌓ Daüria fig. 2364, 2365. 2500
The Daürian Juniper.

9. phœnícea *L.* † S. Europe, &c. fig. 2366. 2501
The Phœnician Juniper.
J. *màjor Dioscóridis Clus.*
Cèdrus phœnícea mèdia Lob.
Cèdrus lýcia retùsa J. Bauh.
Cèdrus fòlio Cupréssi màjor, &c., C. Bauh.
Oxýcedrus lýcia Dod.
Genévrier de Phénicie, Fr.
Dichtnadliger Wachholder, Ger.

10. (p.) lýcia *L.* ❋ ⌙ South of Europe fig. 2367. 2502
The Lycian Juniper.
J. *p. β lýcia* N. Du Ham.
Cèdrus phœnicea áltera Plínii et Theophrásti Lob.
C. *fòlio Cupréssi, &c.*, C. Bauh.

11. thurífera *L.* † Spain fig. 2368. 2503
The incense-bearing, *or Spanish*, Juniper.
J. *hispánica* Mill. Dict.
Cèdrus hispánica, &c., Tourn.

12. excélsa *Willd.* † Himalayas fig. 2369. 2503
The tall Juniper.
J. *Sabìna var.* Pall.
Himalaya Cedar-wood.

13. squamàta *D. Don.* ❋ Nepal - 2504
The scaled Juniper, *or creeping Cedar.*

14. recúrva *Ham.* ❋ Nepal f. 2370. 2504
The recurved *Nepal* Juniper.

15. uvífera *D. Don.* ❋ Cape Horn 2504
The grape-bearing, *or large-fruited*, Juniper.

16. barbadénsis *L.* † ⎵ West Indies 2504
The Barbadoes Juniper.
J. bermudiàna Hort.
Jamaica Berry-bearing Cedar.

17. chinénsis *L.* ❋ ⌓ China fig. 2371, 2372. 2505
The Chinese Juniper.

J. c. 2 Smíthii ? † - fig. 2373. 2505

App. ii. *Kinds of Juníperus mentioned in Books, but of which very little is known.* 2505

J. fœtidíssima *Willd.*
J. capénsis *Lam.*

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Empetràceæ. ❋ ⌓ 2506

I. E'MPETRUM *L.* ⌓ - - 2506
THE CROWBERRY.

1. nìgrum *L.* ⌓ Britain fig. 2374, 2375. 2507
The black Crowberry, *or Crakeberry.*
E. *montànum frúctu nìgro* Ray.
Erìca Matth.
Erìca baccífera Cam. Epit.
E. *coccífera procúmbens* Ger. Emac.
E. *Còris fòlio undécima* Clus.
Variety ⌓ - - 2507
2 scóticum *Hook.* ⌓

2. rùbrum *L.* ⌓ South America fig. 2376, 2377. 2507
The red-*fruited* Crowberry.
Cranberry of Staten Island.

II. CORE'MA *D. Don.* ⌓ - 2506. 2508
THE COREMA.
E'*mpetrum* L., in part.

1. álba *D. Don.* ⌓ Portugal 2508
The white-*berried* Corema.
E'*mpetrum álbum* L., &c,
E'*mpetrum lusitánicum, &c.*, Tourn.
Erìca eréctus, &c., Bauh. Pin.
The white-berried Heath.
Portugal Crakeberry.

III. CERATI'OLA *Mx.* ❋ 2506. 2508
THE CERATIOLA.

1. ericöìdes ❋ South Carolina fig. 2378, 2379. 2509
The Erica-like Ceratiola.

Smilàceæ. ❋ ⫯ Ⱡ 2509

I. SMI'LAX *L.* ❋ ⫯ Ⱡ - - 2510
THE SMILAX.

§ i. *Stems prickly and angular.*

1. áspera *L.* Ⱡ S. France f. 2380. 2510
The rough Smilax.
Rough Bindweed.
Smilax, Fr. and Ger.
Varieties Ⱡ - - 2510
2 auriculàta *Ait.* Ⱡ
Leaves ear-shaped *at the base.*
3 mauritánica
S. *mauritánica* Poir.

2. excélsa *L.* Ⱡ Syria fig. 2381. 2511
The tall Smilax.
S. *orientàlis, &c.*, Tourn.
S. *áspera* Alp Ægypt.

3. rùbens *Wats.* Ⱡ N. Amer. f. 2382. 2511
The red-*tendriled* Smilax.

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4. *Sarsaparilla* L. ⱡ N. and S. America fig. 2383. 2511
The *medicinal* Smilax, *or* Sarsaparilla.
S. *áspera peruviàna* Sarsaparilla *Bauh.*
S. *peruviàna* Park.
S. *glaúca* Michx.
The glaucous-leaved Smilax.

5. hastàta *Willd.* ⱡ Carolina - 2512
The spear-shaped-*leaved* Smilax.
S. *Bòna nóx* Michx.
S. *áspera var.* Lam.

Variety ⱡ - - 2512
2 lanceolàta *Ph.* ⱡ fig. 2383.
S. *lanceolàta* Walt.
? S. *longifòlia* Wats.

6. Waltèr*ii* Ph. ⱡ Virginia - 2512
Walter's Smilax.
S. *Chìna* Walt.

§ ii. *Stem prickly, round.*

7. Chìna *L.* ⱡ China - - 2513
The Chinese Smilax.
Chìna ràdix Bauh., &c.
C. vulgàris officinàrum Ger. Emac.
Smìlax áspera mìnor Plum.
Sankira, *vulgo* Quaquara, *Kæmpf.*

8. rotundifòlia *L.* ⱡ N. America 2513
The round-leaved Smilax.

9. *l*aurifòlia *L.* ⱡ N. America - 2513
The Laurel-leaved Smilax.
S. *áltera, &c.*, Plum. Ic.
S. *læ'vis, &c.*, Catesb.

10. *t*amnöìdes *L.* ✱ N. America - 2513
The black Bryony-like Smilax.
S. *Bryòniæ nìgræ, &c.*, Catesb.

11. cadùca *L.* ⱡ S. America - 2514
The deciduous Smilax.

§ iii. *Stalks unarmed, 4-angled.*

12. Bòna nóx *L.* ⱡ N. America - 2514
The Bona-nox, *or ciliated,* Smilax.
S. *áspera I'ndiæ occidentàlis* Bauh.
S. *fòliis làtis, &c.*, Pluk.
S. *variegàta* Walt.

13. latifòlia *R. Br.* ✱ N. Holl. - 2514
The broad-leaved Smilax.

14. quadrangulàris *Muhl.* ⱡ N. America fig. 2385. 2514
The four-angled Smilax.

§ iv. *Stems unarmed, round.*

15. lanceolàta *L.* ⱡ Virginia, &c. 2515
The lanceolate-*leaved* Smilax.
S. *non-spinòsa, &c.*, Cat.

16. virginiàna *Mill.* ⱡ Virginia - 2515
The Virginian Smilax.

17. pùbera *Willd.* ⱡ North America 2515
The downy Smilax.
S. *pùmila* Walt.

App. i. *Kinds of Smìlax which are either not introduced, or of which we have not seen the Plants.* - - - 2515

S. ovàta *Ph.* Georgia
S. álba *Ph.* Carolina.
S. panduràta *Ph.* N. Amer.
S. nìgra *W.* Spain.
? *The black-berried var. of* S. *áspera.*
S. catalónica *Poir.* Spain.
S. hórrida *Desf.* N. Amer.
S. glaúca *Walt.* N. Amer.
? S. Sarsaparilla *var.*
S. alpìna *W.* Greece.

Liliàceæ. ⱡ ✱ ✱ ⌴ ⌘ ⱡ 2515

I. *A*SPA'RAGUS *L.* ✱ ⌘ ⱡ - 2516
THE ASPARAGUS.
Sarmentàceæ, part of, Juss., Nees Von Esenbeck.
Asperges, Fr.
Spargel, Ger.
Coralcruyt, Dutch.
Sperage, Old English.

1. scándens *Willd.* ⱡ C. G. H. - 2516
The climbing Asparagus.

2. álbus *L.* ⌘ Candia - - 2516
The white Asparagus.
A. *spinòsus, &c.*, Park.
A. *sylvéstris, &c.*, Ger.
Corrùda *tértia* Clus.
Wild Thong Sperage.

3. aphýllus ✱ S. Europe - 2517
The prickly Asparagus.
Corrùda *áltera* Clus.
A. *petræ'a*, *Prickly Roche Asparagus,* Park.

Variety - - - 2517
2 créticus fruticòsus, &c., *Tourn.*

4. (a.) acutifòlius *L.* ✱ Spain - 2517
The acute-leaved Asparagus.
A. Corrùda *Scop.*, *&c.*
A. *fòliis acùtis* Bauh.
A. *sylvéstris* Cam.
A. *petræ'us* Ger.
Corrùda 1. *Clus.*

5. hórridus *L.* ⱡ ? Spain - - 2517
The horrid-*spined* Asparagus.
A. *hispánica* Tourn.

II. *R*U'SCUS *L.* ⌘ ⱡ ⱡ ⌴ 2516. 2517
THE BUTCHER'S BROOM.
Fragon, Fr.
Mäusedorn, Ger.

1. aculeàtus *L.* ⌘ Britain - - 2518
The prickly, *or common*, Butcher's Broom.
Rúscus No. 1238. *Hall., &c.*
Myrtacántha, Lob.

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R. *f. Brúscus* Ger.
R. *myrtifòlius aculeàtus* Tourn., &c.
Rúscus Dod.
Box Holly, Knee Holly, Wild Myrtle, Prickly Pettigree.
Houx Frelon, Petit Houx, Buis piquant, Fragon épineux, Fragon piquant, Fr.
Stechender Mäusedorn, Ger.
Varieties ♣ - - 2518
2 rotundifòlius *Barr.* ♣
R. *vulgàris fòlio-ampliòre* Dill.
3 láxus *Sm.*
R. *láxus* Lodd, Cat.
? R. *flexuòsus* Mill. No. 6.
2. hypophýllum *L.* ♣ Italy and Africa fig. 2387. 2519
The under-leaf Ruscus, *or broad-leaved* Butcher's Broom.
R. *latifòlius, &c.*, Tourn.
Laúrus alexandrìna Lob., Bauh.
L. *a. Chamædáphne* Col.
L. *a. genuìna* Tourn.
L. *a. vèra* Clus., Ray.
L. *Chamædáphne vèra Dioscóridis Park.*
L. *a. áltera* Matth.
Fragon sans Foliole, Fr.
Breitblättriger Mäusedorn, Ger.
Variety ♣ - - 2519
2 trifoliàtum ♣ Zante.
R. *trifoliàtus* Mill.
3. (h.) *H*ypoglóssum *L.* ♣ Italy, &c. 2519
The Under-tongue Ruscus, *or double-leaved* Butcher's Broom.
R. *angustifòlius, &c.*, Tourn.
Hypoglóssum Lob.
Laúrus alexandrìna, frúctu pedículo insidénte, Bauh., Ray.
Uvulària Brunf.
Fragon à Foliole, Fr.
Zungen Mäusedorn, Ger.
4. racemòsus *L.* ♣ Portugal fig. 2388, 2389. 2520
The branchy Ruscus, *or Alexandrian Laurel.*
R. *angustifòlius, frúctu súmmis rámulis, &c.*, Tourn.
Fragon à Grappes, Fr.
Trauben Mäusedorn, Ger.
R. andrógynus *L.* ♣ ⊔ Canary Isles - 2520
III. *YU′CCA* L. ‡ ✱ ✱⊔ 2516. 2521
The Yucca, *or Adam's Needle.*
1. gloriòsa *L.* ✱ Virginia, &c. f. 2390. 2521
The glorious Yucca, *or Adam's Needle.*
Y. *fòliis A′loes* Bauh.
Y. *canadèna* Ald. Hort.
Y. *índica, &c.*, Barr. Rar.
Yúcca *pernàna* Ger., &c.
Y. *nòva gloriòsa, &c.*, Lob.
Cordylìne, &c., Ray.
The superb Yucca.
Yucca nain Bon. Jard.
Yucca à Feuilles entières, Fr.
Prächtiger Yukka, Ger.
Variety ✱ - - 2521
2 fòliis variegàtis *Lodd. Cat.*
2. (g.) supérba *Haw.* ‡ fig. 2391. 2523
The superb Yucca, *or Adam's Needle.*
Y. *gloriòsa* And. Bot. Rep.
3. *a*löifòlia *L.* ‡ South America fig. 2392, 2393. 2523.
The Aloe-leaved Yucca, *or Adam's Needle.*
Y. *arboréscens, &c.*, Dill.
A′loe Yúccæ *fòliis, caulèscens*, Pluk.
A. *americàna* Yúccæ *fòliis, arboréscens*, Com.
Y. *caulésccns, fòliis lineàri-lanceolàtis, &c.*, Michx.
Variety ‡ - - 2523
2 péndula *Cat. Hort. Par.* ‡
The pendent-*leaved* Aloe-leaved Y.
4. dracònis *L.* ‡ S. Carolina f. 2394. 2525
The Dragon Yucca, *or drooping-leaved Adam's Needle.*
Y. *dracònis fòlio serràto refléxo* Dill.
Dracòni árbori, &c., Bauh.
Tacòri *fòlio Dracòni árboris símili* Bauh.
5. strícta *Sims* ‡ Carolina f. 2395. 2525
The upright Yucca, *or Lyon's narrow-leaved Adam's Needle.*
6. recurvifòlia *Salisb.* ✱ Georgia - 2526
The recurved-leaved Yucca.
Y. *recúrva* Hort.
7. filamentòsa *L.* ✱ Virginia f. 2396. 2526
The filamentose Yucca, *or thready Adam's N.*
Y. *fòliis filamentòsis* Moris. Hist.
Y. *virginiàna, &c.*, Pluk.
8. (f.) angustifòlia *Ph.* ✱ North America
The narrow-leaved Yucca. fig. 2397. 2526
9. fláccida *Haw.* ✱ Georgia f. 2398. 2527
The flaccid-*leaved* Yucca.
10. glaucéscens *Haw.* ✱ North America
The glaucescent Yucca. fig. 2399. 2527

Half-hardy Monocotyledonous Plants, deserving a place in the British Arboretum. - - - 2527

Foucroý*a* longæ̀va *Karw.* Mexico fig. 2400, 2401. 2527
F. gigantèa *Vent.* S. America 2527
Littæ̀*a* gemmiflòra *Brig.* Peru fig. 2402. 2522
Agàve gemmiflòra Ker.
Bonapártea júncea Haw.
Agàve americàna *L.* S. America 2529
The American Aloe.
*P*hórmium tènax *L.* N. Zealand 2529
The New Zealand Flax.
*C*hamæ̀rops hùmilis *L.* ‡ S. Europe fig. 2403. 2530
The dwarf Fan Palm, *or Palmetto.*
Phœ̀nix hùmilis Cav.
Pálma hùmilis Bauh.
Palmiste E′ventail, Fr.
Zwergpalme, Ger.
C. serrulàta *Willd.* ‡ Georgia 2532
C. hýstrix *Ph.* ‡ Georgia - 2532
C. Palmétto Willd. Carolina - 2532
Córypha Palmétto *Walt.*
The Cabbage Tree, Amer.
Bambùsa nìgra *Lodd. Cat.* ‡ India 2532
B. ? *a*rundinàcea ‡ India - 2532
Arúndo Dònax Willd. ♣ S. Europe and Mount Ætna - - - 2532

SUPPLEMENT,

CONSISTING OF ADDITIONS AND CORRECTIONS.

The Species or Varieties not included in the body of the work, but here added, have the sign of addition prefixed, thus +. Those in which the name has been altered have the mark || prefixed.

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*C*lématis triternàta *Dec.* - - 2534
+ *C.* nepalénsis *Dec.* ♣ Mounts Choor, Urukta, &c. - 2534
The Nepal Clematis.
C. *montàna* D. Don.
C. *montàna var.* Ham. MS.
+ *C.* Hendersònii Hort. ♣ Hybrid 2535
C. flórida - - - 2535
+ *C.* f. 3 Siebóldti D. Don. ♣ Japan 2535
C. *Siebóldti Paxt.*
C. *bicolor* Hort.
+ *13. *C.* cærùlea *Lind.* ♣ Japan fig. 2407. 2535
The blue, *or violet, flowered* Clematis.
C. *azùrea grandiflòra* Sieb.
C. *grandiflòra* Hort.
C. Viticélla *L.* - - - 2535
C. V. 5 baccàta - - 2535
C. campaniflòra *Brot.* - - 2535
C. baleárica *Rich.* fig. 2408. 2535
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Magnòl*ia* grandiflòra - - 2536
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B. Coriària *Wall.*
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Mahòn*ia* Nutt. - - - 2537
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+ *Nandìna* doméstica *Humb.* ♣ ⊔ China fig. 2410. 2537

Cruciàceæ. - 2538

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*H*ibíscus syrìacus - - 2538
+ *Málva* Munro*àna* D. Don ♣ Columbia fig. 2411. 2538
Munro's Mallow.

T*iliàceæ.* - 2538

*T*ília - - - - 2538
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*H*ypéricum canariénse *L.* fig. 2414. 2541
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? H. *nepalénse* Hort.
H. Kalm*iànum* Lam. - - 2541
‖ H. *foliòsum* Ait.
H. prolíficum *L.* fig. 2415. 2541
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A. Pseùdo-*P*látanus - - 2542
A. campéstre - - - 2542
+ var. 5 lævigàtum. ♆
The *smooth-leaved* Field Maple.
+ *A.* c. 6 nànum *Hort.* ♣ - - 2542
The dwarf Field Maple.
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Æ. (H.) ohioénsis - - 2543
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+ Corræ'*a* álba *Sm.* ■ ⊔ fig. 2419. 2544
C. cotinifòlia Sal.
+ C. a. 2 rotundifòlia *Dec.* ■ ⊔ - 2554
C. rùfa Vent.
+ Cròwe*a* salígna *Sm.* ■ ⊔ fig. 2420. 2544
+ Boròn*ia* serrulàta *Sm.* ■ ⊔
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*E*uónymus europæ'us - - 2545
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E. grandiflòrus - - 2545
+ *E.* caucásicus *Lodd. Cat.* ♣
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? E. *nàna* Bieb.
E. japónicus fig. 2425. 2545
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Nemopánthes canadénsis fig. 2424. 2545
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+ *I. A.* 24 frúctu nìgro *Hort.* ⚲ - 2545
The black-fruited common Holly.
I. baleárica fig. 2426. 2546
+ *I.* magellánica *Lodd. Cat.* ⚲ - 2546
*P*rìnos decíduus - - 2546
P. verticillàtus - - 2546
P. glàber fig. 2428. 2546
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LIST OF AUTHORITIES

FOR GENERIC AND SPECIFIC NAMES, &c.

A.

A. et S.	*Albertini et Schweinitz.* Moravian missionaries resident in America.
Abb. et Smith.	*Abbott and Smith.* The first an amateur, the second the founder of the Linnæan Society.
Abbott.	*Abbott.* See *Abbott et Smith.*
Abel.	*Abel.* Author of "Personal Observations,&c.,in China."
Ach.	*Acharius.* A Swedish professor, and writer upon Lichens.
Ach. Rich.	*Achille Richard.* A French botanist.
Adans.	*Adanson.* A French systematic botanist.
A. De C.	*Alphonse De Candolle.* Author of "Monographie des Campanulées," &c.; and son of the distinguished De Candolle.
Afzel.	*Afzelius.* A Swedish professor.
Ait.	*Aiton.* Director of the Royal Garden at Kew.
Alb. et Schw.	*Albertini and Schweinitz.* Writers upon Fungi.
All. *Allioni.*	*Allioni.* An Italian botanist.
Alpin.	*Prosper Alpini.* An Italian physician, and author of "De Plantis Ægypti et de Balsamo," &c.
Anders. *Anderson.*	*Anderson.* A London merchant; published a paper on Pæonies.
Andr. *Andrews.*	*Henry Andrews.* A botanical draughtsman, and editor of the "Botanical Repository," &c.
Audib. *Audibert.*	*Audibert.* A nurseryman at Tarascon, in the south of France.
Austin.	*Austin.* A nurseryman at Glasgow.

B.

Bab.	*Babington.* An English botanist.
Backhouse.	*Backhouse.* A nurseryman at York.
Balb. *Balbis.*	*Balbis.* A French professor of botany.
Banister.	*Banister.* A botanical author, and traveller.
Barrel. *Barrelier.*	*Barrelier.* A French botanist.
Bartr. *Bartram.*	*Bartram.* Formerly a nurseryman at Philadelphia.
Bat. *Bast.*	*Bastard or Batard.* A writer upon the Flora of France.
Batsch.	*Batsch.* A writer upon Fungi.
Bauh. *Bauhin.*	*Bauhin.* Brothers, professors of medicine, published in 1620—1650.
Benth. *Bentham.*	*Bentham.* An English botanist, secretary to the Horticultural Society of London.
Bergius.	*Bergius.* A Swedish writer upon Cape Plants.
Berk.	*Rev. M. J. Berkeley.* An English cryptogamic botanist.
Bert. *Bertol.*	*Bertoloni.* A writer upon the Flora of France.
Bess. *Besser.*	*Besser.* A Russian professor, resident in the Crimea.
Bieb.	*Bieberstein.* A Russian botanist of great note.
Bigel. *Bigelow.* *Big.*	*Jacob Bigelow, M.D.* Professor of botany at Boston, U. S., and author of "American Medical Botany," and "Florula Bostoniensis."
Blume.	*Blume, M.D.* A Dutch botanist.
Boerh.	*Boerhaave.* An old Dutch botanist.
Bolt.	*Bolton.* An English writer on Fungi.
Booth.	*Booth.* Brothers, nurserymen at Hamburg.
Bonpl.	*Bonpland.* A French traveller in South America, and botanist.
Booth.	*W. Beattie Booth.* Describer of the Camellias figured in Chander's "Illustrations of the Camelliеæ."
Bork.	*Borkhausen.* A German botanical author.
Borrer.	*William Borrer.* A writer on British Plants, and one of the authors of "Lichenographia Britannica."
Bosc.	*Bosc.* A French botanist, and traveller in North America.
Breyn.	*Breyn.* Author of "Exoticarum Plantarum Centuria," &c.
Brong.	*A. Brongniart.* A French botanist.
Brot.	*Brotero.* A Portuguese botanist.
Broussonet.	*Broussonet.* A French botanist, and traveller.
Buch.	*Von Buch.* A German botanist, an author of a Flora of the Canaries.
Buchanan.	*Buchanan,* formerly Hamilton. An English physician, and traveller in Nepal.
Bull.	*Bulliard.* A French writer upon Fungi.
Bunge.	*Bunge.* One of the authors of "Flora Altaica."
Burch.	*Burchell.* An English botanist, and traveller at the Cape of Good Hope.
Burgsdorf.	*Burgsdorf.* A German botanist.
Busch.	*Busch.* A German gardener, once a nurseryman at Brentford, Middlesex; and afterwards gardener to the Empress Catherine, at Zarskoje-selo.
Buxb.	*Buxbaum, M.D.* A Russian

botanist; traveller through Armenia.

C.

Cæsalp.	*Cæsalpinus.* A famous old Italian botanist.
Camb.	*Cambessedes.* One of the authors of "Flora Brasiliæ meridionalis."
Camer.	*Camerarius.* A German botanist, author of "Hortus Medicus et Philosophicus," &c.
Cass.	*H. Cassini.* A French botanist.
Castagne.	*L. Castagne.* A French botanist?
Catesb. *Catesby.*	*M. Catesby.* A botanist, and traveller in North America.
Catros.	*Catros.* A nurseryman at Bordeaux.
Cav.	*Cavanilles.* A Spanish professor and botanist.
C. Bauh.	*Caspar Bauhin.* A celebrated botanist of the 16th century.
Cels.	*Celsius, D.D.*, Greek professor at Upsal, and friend of Linnæus.
Cels.	*Cels.* A nurseryman in Paris.
C. G. Nees Von Esenbeck.	*C. G. Nees Von Esenbeck.* A German botanist.
Chaill.	*M. Chaillet.* A Swiss botanist.
Cham.	*Chamisso.* A German traveller round the world.
Chois.	*Choisy.* A Swiss botanist.
Clus.	*Clusius.* An old French botanist and traveller.
Colebr.	*Colebrooke.* A celebrated English writer upon Indian Plants.
Colla.	*Colladon.* A Genevese botanist.
Com.	*Commelin.* A Dutch botanist.
Cook.	*Capt. S. E. Cook.* A naturalist and traveller.
Correa.	*Correa de Serra.* A Portuguese botanist and diplomatist.
Crantz.	*Crantz.* An Austrian botanist.
Cullum.	*T. G. Cullum.* A botanical amateur.
Cunn. *Cunningham.*	*A. Cunningham.* Colonial botanist at Sydney.
Curt.	*Curtis.* An English writer upon Plants.

D.

Dalech.	*Dalechamps.* Author of "Historia generalis Plantarum." 1586, 1587.
Darlington.	*Darlington.* A writer in "Amer. Lyc. N. H." of New York.
Davies.	*H. Davies, D.D.* A Welsh botanist.
D. Don.	*David Don.* Professor of botany in King's College, London, and librarian to the Linnæan Society.
Deb. *De Bray.*	*Debray.* A botanist of Frankfort.
Dec. *De Candolle.*	*A. P. De Candolle.* The celebrated French systematic botanist.
De Geer.	*C. De Geer.* Author of "Mémoires pour servir à l'Histoire des Insectes," &c.
Dejean.	*Le Comte Dejean.* A French naturalist.
Del.	See *Delile.*
Delamarre.	*Delamarre.* A French writer on plants.
Delarb.	*Ant. Delarbre.* A French botanist, author of "Flore d'Auvergne."
Delile.	*Delile.* A French professor, and traveller in Egypt.
Descemet.	*Descemet.* Director of the Botanic Garden at Nikitká, in the Crimea.
Desf.	*Desfontaines.* A French botanical author, and traveller in Barbary.
Desrous.	*Desrousseaux.* A French botanist.
Desm.	*Desmazières.* A French cryptogamic botanist.
Desv.	*Desvaux.* A French professor of botany.
Dickson.	*Dickson.* An English cryptogamic botanist.
Dios.	*Dioscorides.* An ancient classic author and botanist.
Dod. *Dodon.*	*Dodonæus, or Dodoens.* A botanist of the 16th century.
Domb.	*Dombey.* A French traveller in South America.
Don of Forfar.	*Don of Forfar.* A Scotch botanist.
Donn.	*Donn.* Formerly curator of the Cambridge Botanic Garden.
Dougl. *Douglas.*	*David Douglas.* The celebrated botanical collector and martyr.
Dralet.	*Dralet.* A French writer on the oak.
Duby.	*Duby.* A French botanist.
Dufour.	*Dufour.* A French botanist.
Dumont.	*Dumont de Courset.* A writer upon French garden plants.
Dun. *Dunal.*	*Dunal.* A French botanist.
Dupont.	*Dupont.* A French botanist, author of "Double Flore Parisienne." 1805.
Dur. *Durand.*	*Durand.* A French botanist.
Du Roi.	*Du Roi.* A German writer upon plants.

E.

Ehr.	See *Ehrenberg.*
Ehrenberg.	*Ehrenberg.* A German traveller in Arabia, &c.
Ehrh.	*Ehrhart.* A German botanist.
Elliot.	*Elliot.* An American botanist.
Ellis.	*Ellis.* A London merchant and botanist.
Eschsch.	*Dr. Eschscholtz.* A German botanist.
Esper.	*Esper.* A German writer on Fúngi.

F.

Fab. *Fabr.*	*P. C. Fabricius.* A German botanist.
Falla.	*Falla.* A nurseryman at Gateshead, near Newcastle.
Fing.	*Fingerhuth.* A German botanist.
Fisch. *Fischer.*	*Dr. Fischer.* A Russian botanist.
Floy.	*Floy.* A nurseryman in New York.
Flügge.	*Flügge.* A German writer upon grasses.
Forbes.	*Forbes.* Gardener to His Grace the Duke of Bedford, at Woburn.
Forsk.	*Forskáht.* A Danish naturalist, and traveller in Arabia.
Forst.	*Forsters (Father and Son).* Travellers in the South Seas with Captain Cook.
Fourc.	*A. F. Fourcroy.* A French botanist.
Fries.	*Fries.* A Swedish botanist, and writer upon Fúngi.

Fuch.	*Fuchs.* A celebrated German botanist.

G.

Gært.	*Gærtner.* A celebrated German carpologist.
Garden.	*Garden.* A Scotch physician resident at Charleston.
Gaudichaud.	*Gaudichaud.* A French botanist.
G. Don.	*Geo. Don.* A botanist, and editor of "Don's Miller."
Geoffr.	*Geoffroy.* A French botanist of the 18th century.
Ger. et Lob.	See *Gérard*, and also *Lobel.*
Ger. *Gérard.*	*Gérard.* A French botanist.
Germar.	*Germar.* A German entomologist.
Gesn.	*Conrad Gesner* of Zurich, a famous botanist.
Gill.	*Dr. Gillies.* A botanist and traveller.
Gill. et Hook.	See *Gill.*, and also *Hook.*
Gmel.	*Gmelin.* A Russian botanist, and traveller in Siberia.
Godefroy.	*Godefroy.* A nurseryman at Ville d'Avray, near Paris.
Goldie.	*Goldie.* A nurseryman at Ayr, in Scotland.
Gordon.	*George Gordon.* Superintendent of the Arboretum in the Horticultural Society's Garden.
Gouan.	*Gouan.* A French botanist.
Grah. *Graham.*	*Graham, M.D.* Regius professor of Botany at Edinburgh
Grev.	*Dr. Greville.* An English botanist, and writer upon cryptogamous plants.
Grigor.	*Grigor.* A nurseryman at Elgin.
Güldenst.	*Güldenstaedt.* A Russian botanist.
Guss.	*Joannes Gussone, M.D.* Director of the Royal Botanic Garden at Palermo, and a botanical author.
Gyll.	*L. Gyllenhall.* Author of "Insecta Suecica descripta." 1808, 1827.

H.

Hænke.	*Hænke.* A German botanical writer.
Hakluyt.	*Hakluyt.* Author of "Two Remembrances of Things to be undiscovered in Turkey, &c." 1592.
Hall.	*Haller.* A Swiss botanist.
Hall.fil.	*Haller the younger.*
Ham. *Hamilt.*	*Hamilton.* A botanist, and traveller in the East Indies.
Hanbury.	*Hanbury.* A writer upon gardening.
Harris.	*Harris.* An entomologist.
Hart.	*Hartweg.* Author of "Hortus Carlsruhensis."
Hartig.	*Hartig.* A writer on the culture of forest trees.
Hasselq.	*Hasselquist.* A botanist, and traveller in the Levant.
Hayne.	*Hayne.* A German botanist.
H. B.	*Humboldt and Bonpland.* Famous travellers and botanists.
H. B. et Kth.	*Humboldt, Bonpland, and Kunth.* German botanists.
Hell.	*N. C. Hellenius.* A Swedish botanist.
H. et Kth.	*Humboldt and Kunth.* German botanists.
H. L. W.	*Henry Lee Warner, Esq.*, Tibberton Court, Herts.
Hodgins.	*Hodgins.* Nurseryman, Dunganstown, near Wicklow.
Hoffmans	*Hoffmannsegg.* A botanist of Dresden.
Holmsk.	*Holmskiold.* A Danish botanist.
Hook.	*Sir W. J. Hooker.* Regius professor of botany in the University of Glasgow.
Hook. et Arn.	*Sir W. J. Hooker and Arnott*, authors of "The Botany of Captain Beechey's Voyage to the Pacific," &c.
Hoppe. *Hope.*	*Hoppe.* A German botanist and collector of plants.
Horn.	*Hornemann.* A Danish botanist and professor.
Hort.	*Hortulanorum.* Of the Gardeners.
Hort. Par.	*Of the Paris Garden.*
Host.	*Host.* An Austrian botanist, and botanical author.
Howison.	*Howison.* A writer in the "Edin. Phil. Journ."
Huds.	*Hudson.* An English writer upon British plants.
Hull.	*Hull.* A English botanist.
Humb. et Bonp. *Humb.et Bonpl.*	*Humboldt and Bonpland.* — See *H. B.*

I.

Illig. *Illiger.*	*C. Illiger.* A writer on natural history.

J.

Jacq.	*Jacquin.* An Austrian traveller in South America, and botanist.
Jaume St.Hilaire.	*Jaume Saint Hilaire.* A French botanist, and author of "Plantes de la France," &c.
J. B. *J. Bauh.*	*Jo. Bauhin*, brother of Caspar Bauhin, and author of "Historia Plantarum universalis." 1650, 1651.
John Grigor.	*John Grigor*, nurseryman of Forres.
J. O. W.	*J. O. Westwood.* An English entomologist.
Juss.	*Jussieu.* A celebrated French systematic botanist.
Juv.	*Juvenal.* A classic author.

K.

Kæmpf.	*Kæmpfer.* A traveller in Japan.
Karw. et Zuccar.	*Baron Karwinski and Zuccarini.* Zealous promoters of botany in Germany.
Kalm.	*Kalm.* Professor of botany at Abo, in Sweden.
Ker.	*Ker.* A describer of plants in "Bot. Reg."
Kerner	*J. S. Kerner.* Author of "Figures (et Descriptions) des Plantes économiques." 1786—1794.
Kit. *Kitaib.*	*Kitaibel.* A Hungarian botanist.
Klotzsch.	*Klotzsch.* A German writer on Fungi.
Knowl. et Westcott.	*Knowles* (*G. B.*) *and Westcott* (*F.*). Conductors of the "Floral Cabinet."
Koch.	*Koch.* A professor at Erlangen.
Koehl.	*Koeler.* A writer on German and French grasses.
Krause. *Krauss.*	*Krause.* A Dutch botanist, and author of "Boomen en Heestar."
Kunth.	*Kunth.* A Prussian botanist.

L.

L.	*Linnæus.* The celebrated reformer of natural history.
Lab. *Labill.*	*Labillardière.* A French botanist.
Lag. *La Gasca.*	*Lagasca.* A Spanish botanist and professor.
Lam. *Lamarck.*	*Lamarck.* A French botanist.
Lamb. *Lambert.*	*A. B. Lambert, F.R.S.* President of the Linnean Society.
Lap. *Lapey.*	*La Peyrouse.* A French writer upon the plants of the Pyrenees.
Lat. *Latr.*	*Latreille.* A French entomologist.
Lawr.	*Lawrence* (*Miss*). An English flower-painter.
Laxm.	*Laxmann.* A German writer on Siberian plants.
Leach.	*W. E. Leach.* An English entomologist and author.
Lech.	*Lechenault.* A French botanist.
Led. *Ledebour.*	*Ledebour.* A botanist, and traveller in Siberia.
Lee.	*Lee.* A nurseryman at Hammersmith.
Lehm.	*Lehmann.* A German botanist and professor at Hamburg.
Lejeune.	*Lejeune.* A French botanist.
Lessing.	*Lessing.* A writer on Compositæ, and resident at Berlin.
Lewis.	*Lewis.* An American traveller.
L. fil.	*Linnæus the younger.*
L'Hér. *L'Hérit.*	*C. L. L'Héritier.* A French botanist and author.
Lightfoot.	*Lightfoot.* A writer upon the Scottish flora.
Lin.	*Linnæus.* The celebrated reformer of natural history.
Lindl.	*Dr. Lindley, F.R.S., &c.* Professor of botany in University College, London.
Link. *Lk.*	*Link.* A celebrated Prussian botanist.
Link et Otto. *Lk. et Otto.*	*Link and Otto.* Two Prussian botanists.
Lob. *Lobel.* *L'Obel*	*Lobel.* An old writer upon plants.
Lodd. *Loddiges.*	*Messrs. Loddiges.* Celebrated English nurserymen and botanists, Hackney.
Lois. *Lois. Deslongchamps.*	*Loiseleur Deslongchamps.* A French botanist.
Loudon.	*J. C. Loudon, F.L.S., &c.* Author of this work, and of various works on gardening, agriculture, &c.
Lour.	*Loureiro.* A Portuguese traveller in Cochin-China.
L. pat.	*Linnæus the elder.*
Lysons	*Lysons.* Author of "Environs of London," &c.

M.

Macgillivray.	*Macgillivray.* A botanist, and editor of a small edition of "Withering's Botany," &c.
Mackie.	*Mackie.* A nurseryman at Norwich.
Main.	*J. Main, A.L.S.* A botanical and gardening author.
Mal. *Malp.*	*Malpighi.* A physiological botanist.
Malcolm.	*Malcolm.* Late nurseryman at Kensington
Marsh. *Marshall.*	*Marshall.* A writer on American trees.
Marsham.	*Marsham.* An English entomologist.
Masters.	*W. Masters* of the Canterbury Nursery.
Math.	*Mathiolus.* An Italian physician.
Mayes.	*Mayes.* A writer in the "West of England Journal of Science," &c.
Medik.	*Medicus.* A German botanist of the last century.
Menzies.	*Menzies.* A Scotch botanist, and traveller round the world with Vancouver.
Mertens.	*Mertens.* A French botanist.
Meyer.	*Meyer.* A German botanist.
Michx.	*Michaux.* A French botanist, and traveller in N. Amer., and author of "Flora Borealis Americana."
Michx. fils. *Michx. jun.*	*Michaux the younger.* Also a botanist and traveller in N. America, author of "Histoire des Arbres de l'Amérique."
Mill.	*Miller.* An English gardener and botanist.
Mirb.	*Mirbel.* A French physiological botanist.
M. J. B.	*The Rev. M. J. Berkeley, F.L.S., &c.* An eminent English cryptogamist.
M'Nab.	*M'Nab.* Superintendent of the Edinburgh Botanic Garden.
Moc.	*Mocino.* A Mexican botanist.
Moc. et Sesse.	*Mocino and Sesse.* Two Mexican botanists.
Mœnch.	*Mœnch.* A German botanist.
Mol.	*Molina.* An Italian writer upon the natural history of Chili.
Mor.	*Morison.* An old writer on plants.
Moug. et Nest.	*Mougeot,* a German cryptogamist; and *Nestler,* a botanist of Strasburg.
Mont.	*J. Monti.* An Italian botanist.
Mr. G. Lindley.	*Mr. George Lindley,* late nurseryman, Norwich.
Mühl. *Mühlenb.* *Mühlenberg.*	*Mühlenberg.* A North American botanist.
Munch.	*Baron Otto von Munchausen.* A German botanist.
Munt. *Munting.*	*A. Munting.* A German botanist.
Murr.	*Murray.* A German botanist.
Mutis.	*Mutis.* A Spanish botanist, resident in New Grenada.
Mx.	*Michaux.* See *Michx.*

N.

Neck. *Necker.*	*Necker.* A German writer upon botanical affairs.
Nee.	*Louis Nee.* A Spanish botanist.
Nees. *Nees von Esenbeck.*	*Nees von Esenbeck.* A German botanist.
Neill.	*Dr. Neill* of Canon Mills. A zealous botanist, and promoter of horticulture.
Nestl.	*Nestler.* A botanist of Strasburg.

Niss. *Nissole.*	*Nissole.* A French botanist.
Nois. *Noisette.*	*Noisette.* A French nurseryman.
Noronha.	*Noronha.* A Spanish botanist who visited Madagascar.
Nutt. *Nuttall.*	*Nuttall.* A North American botanist.

O.

Old.	*Older.* A Danish botanist.
Oldaker.	*Oldaker.* Formerly gardener to Sir Joseph Banks.
Oliv. *Olivier.*	*Olivier.* A French botanist, and traveller in Persia.
Opiz.	*Opiz.* A German botanist.
Or. *Ort.*	*Ortega.* A Spanish botanist.
Otto.	*Otto.* Director of the Royal Botanic Garden, Berlin.
Otto et Hayne.	*Otto and Hayne.* Two German botanists.

P.

Pall.	*Pallas.* A Russian traveller and naturalist.
Parm.	*Parmentier.* A French nurseryman.
Parkinson.	*Parkinson.* An old botanical author.
Penny.	*George Penny.* A botanist and nurseryman.
Perrottet.	*Perrottet.* A French botanist.
Pers.	*Persoon.* A French botanist and botanical author.
Pesch.	*Peschier.* Author of "Disp. inaug. de Irritabilitate Animalium et Vegetabilium." 1697.
Petit Thouars.	*Aubert du Petit Thouars.* A French botanist and botanical author.
Ph.	*Pursh.* A Prussian botanist, and traveller in North America.
Phillips.	*Phillips.* Author of "Sylva Florifera," &c.
Pliny.	*Pliny.* An ancient naturalist and classic author.
Plumier.	*Plumier.* A French botanist, and traveller in the West Indies.
Pohl.	*Pohl.* A German botanist.
Poir.	*Poiret.* A French botanical writer.
Poit. et Turp.	*Poiteau and Turpin.* French botanical draughtsmen.
Poll.	*Pollich.* A German writer on the plants of the Palatinate.
Potts.	*J. Potts.* A collector of plants in China.
Pourr.	*Pourret.* A French botanist.
Presl.	*Presl.* A Bohemian botanist.
Puer.	*Puerari.* A professor at Copenhagen.
Pursh.	*Pursh.* A Prussian botanist, and traveller in North America.

R.

R. et P.	*Ruiz and Pavon.* Spanish botanists, and travellers in Peru and Chile.
Raf. *Rafin.* *Rafinesque.*	*Rafinesque Schmalz.* A botanical author.
Rand.	*Rand.* Author of "Index Plantarum officinalium Horti Chelseani," &c. 1730.
Ratzeburg.	*Ratzeburg.* An entomologist.
Ray.	*John Ray.* A celebrated botanist and naturalist.
Reb.	*J F. Rebentisch.* A German botanist.
R. Br. *R. Brown.*	*Dr. Robert Brown, F.R.S., &c.* A distinguished English botanist and traveller in New Holland.
Red. *Redouté.*	*Redouté.* A French botanical draughtsman.
Reich.	*Reichenbach.* A German botanist.
Renault.	*Renault.* A French botanical writer.
Reneaulm.	*P. Reneaulme.* Author of "Specimen Historiæ Plantarum." 1611.
Retz.	*Retzius.* A German botanist.
Reyn.	*Reynier.* A botanist of Lausanne.
Rich.	*Richard.* A French botanist.
Richards. *Richardson.*	*Dr. Richardson.* A traveller in the northern parts of British America, and author of the Appendix on Natural History to Franklin's "Travels."
Risso.	*Risso.* An Italian writer upon oranges.
Robert T. Pince.	*Robert T. Pince* of the Exeter Nursery.
Robs.	*Robson.* An English botanist.
Rochel.	*Rochel.* Superintendent of the garden at Pesth.
Röm. et Schult. *Rœm. et Schult.*	*Rœmer,* a German botanist; and *Schultz,* a Bavarian botanist.
Roll.	*Rollinson.* A nurseryman near London.
Ronalds.	*Ronalds.* A nurseryman at Brentford.
Rossmässler.	*Rossmässler.* A German entomologist.
Rott.	*Rottler.* A German missionary.
Roxas di San Clemente.	A Spanish botanist.
Roxb.	*Roxburgh.* An Indian botanist.
Royle.	*Dr. Royle, F.R.S., &c.,* Prof. of Mat. Med. in King's College. Author of "Illustrations of the Natural History and Botany of the Himalayas," &c.
Rudge.	*Rudge.* An English writer upon botanical subjects.
Rudolphi.	*Rudolphi.* A German cryptogamic botanist.
Ruiz et Pav. *Ruiz et Pavon.*	*Ruiz and Pavon.* Spanish botanists, and travellers in Peru and Chile.
Rumph.	*Rumphius.* Author of "Herbarium Amboinensis."
Russ.	*Russell.* A botanist of Aleppo.

S.

Sab. *Sabine.*	*J. Sabine, F.R.S., &c.* A great encourager of natural history, botany, and gardening.
Sal. *Salisb.*	*Salisbury.* An eminent English botanist.
Salzm.	*Salzmann.* Author of "Enumeratio Plantarum rariorum, quas collegit." 1818.
Samouelle.	*Samouelle.* A British entomologist and author.
Santi.	*Santi.* An Italian botanist.
Savi.	*Savi.* An Italian botanist.

Schæff.	*Schæffer.* A German writer upon *Fúngi.*
Schiede et Deppe.	*Schiede and Deppe.* Writers on the botany of Mexico.
Schl.	*Schleicher.* A Swiss plant collector.
Schlecht.	*Schlechtendahl.* A celebrated German botanist.
Schlecht. et Cham.	*Schlechtendahl and Chamisso.* Two German botanists.
Schleicher.	*Schleicher.* A Swiss plant-collector.
Schmidt.	*Schmidt.* A German botanical author.
Schneevoogt.	*Schneevoogt.* Author of "Icones Plantarum rariorum." Haarlem, 1793.
Schober.	*Schober.* A Russian physician.
Schonberg.	*Schonberg.* A German botanist.
Schott.	*Schott.* A traveller in Brazil.
Schousb.	*Schousboe.* A writer upon the Flora of Morocco.
Schouw.	*Schouw.* A celebrated Danish botanist, and professor at Copenhagen.
Schrad. *Schrader.*	*Schrader.* A German botanist.
Schrank.	*Schrank.* A Bavarian botanist.
Schreb.	*Schreber.* A German botanist.
Schubert.	*Schubert.* A Polish botanist.
Schult. *Schultes.*	*Schultes.* A Bavarian botanist.
Schum.	*Schumacher.* A Danish botanist.
Schwein.	*Schweinitz.* An American botanist.
Scop.	*Scopoli.* An Italian botanist.
Scouler.	*D. Scouler.* Professor at Dublin.
Secondat.	*Secondat.* A French naturalist.
Ser. *Seringe.*	*Seringe.* A Swiss botanist.
Sèvres.	*Sèvres.* A French writer on agriculture.
Sibth.	*Sibthorp.* An English botanist, and professor of botany at Oxford, traveller in Greece, and author of "Flora Græca."
Sieb.	*Sieber.* A botanical collector.
Sieb.	*Siebold (Dr. von).* A Bavarian botanist, who has imported many valuable plants from Japan.
Sievers.	*Sievers.* A German botanist.
Sims.	*Sims.* An English garden botanist.
Smith.	*Sir J. E. Smith.* Founder of the Lin. Soc., and author of several botanical works.
Smith of Ayr.	*Smith.* Nurseryman of Ayr.
Sol. *Soland.*	*Solander.* A Swedish botanist, and companion of Sir Joseph Banks in Cook's voyage round the world.
Somm.	*Sommerfelt.* A German writer on *Fúngi.*
Soulange-Bodin.	*Soulange-Bodin.* A French botanist and horticulturist.
Sow.	*Sowerby.* An English botanical draughtsman.
Spenser.	*Spenser.* The celebrated poet.
Steele.	*Steele.* A writer in the "Gardener's Magazine."
Steph. *Stephens.*	*Stephens.* A British entomologist.
Stev. *Steven.*	*Steven.* A Russian botanist.
Stev. et Fisch.	*Steven and Fischer.* Russian botanists.
Stokes.	*Stokes.* An English physician.
Strab.	*Strabo.* The geographer.
Straus.	*Strauss.* A German botanist.

Swt.	*Sweet.* An English botanist.
Swz. *Swartz.*	*Swartz.* A Swedish botanist, and traveller in the West Indies.

T.

Tabern.	*Tabernæmontanus.* A German botanist.
Tate.	*Tate.* Nurseryman, Sloane Street, Chelsea.
Tausch.	*Tausch.* A German botanist.
Tav.	*Tavernier.* A traveller in the East.
Ten. *Tenore.*	*Tenore.* A Neapolitan botanist.
Theoph.	*Theophrastus.*
Thib.	*Thibaud De Chanvalon.* A French botanist.
Thomp. *Thompson.*	*Robert Thompson.* Superintendent of the fruit department in the Chiswick Garden.
Thore.	*Thore.* A French botanist.
Thory.	*Thory.* A French botanist.
Thouin.	*Thouin.* A French botanist.
Thuil. *Thuillier.*	*Thuillier.* A French botanist.
Thun. *Thunb.*	*Thunberg.* A Swedish botanical traveller.
Tighe.	*Tighe.* An English poet.
Tineo.	*Tineo.* A professor at Palermo.
T. Nees ab E.	*T. Nees ab Esenbeck.* A German botanist.
Tode.	*Tode.* A German writer on *Fúngi.*
Torrey.	*Torrey.* An American botanist.
Tourn.	*Tournefort.* An old French botanist, and traveller in Greece and Asia Minor.
Trag.	*Tragus* or *Bock.* A German botanist.
Trat.	*Trattinik.* A botanist of Vienna.
Turner.	*Dr. Turner.* A British botanist and author.
Turp.	*Turp.* A French botanist and draughtsman.

V.

Vahl.	*Vahl.* A botanical author.
Vail.	*Vaillant.* A French botanist and traveller.
Vent.	*Ventenat.* A French botanist.
Vest.	*Vest.* A Styrian botanist.
Vill. *Villars.*	*Villars.* A French botanist.
Vilmorin.	*Vilmorin.* A nurseryman and botanist at Paris.
Virg.	*Virgil.*
Vitm.	*Vitmann.* A German botanist.
Viv.	*Viviani.* An Italian botanist.

W.

W.	*Willdenow.* A German botanist, and editor of an edition of Linnæus's "Species Plantarum," &c.
Wahlenb.	*Wahlenberg.* A Swedish botanist.
Waitz	*Waitz.* A German collector of roses.
Wal. *Waldst.*	*Waldstein.* A noble German patron of botany.
Waldst. et Kit.	*Waldstein and Kitaibel.* Authors of the "Flora of Hungary."

Walker.	*Dr. Walker.* A Scotch writer on plants.
Wall.	*Wallich.* Superintendent of the botanical garden at Calcutta.
Wallr.	*Wallroth.* A German botanist.
Walt.	*Walter.* A writer on the "Flora of Carolina."
W. et N.	*Weihe and Nees.* German writers on *Rùbi.*
Wang. *Wangenh.* *Wangenheim.*	*Wangenheim.* A German botanist.
Wats. *Watson.*	*Watson.* An English writer upon trees and shrubs.
W. B.	*W. Borrer, F.L.S.* A celebrated English botanist, and writer upon English plants, more especially willows.
Weihe.	*Weihe.* A German writer on *Rùbi.*
Weihe et Nees.	*Weihe and Nees.* Two German writers on *Rùbi.*
Wend.	*J. W. F. Wenderoth.* A German botanist.
Wendl.	*Wendland.* A German garden botanist.
Westw.	*J. O. Westwood, F.L.S.* An eminent English entomologist, and secretary to the Lond. Ent. Soc.
W. Henderson.	*W. Henderson.* Crum Castle.
Whitley.	*Whitley.* A nurseryman at Fulham.
Wicks.	*Wickstrom.* A German botanist.
Willd.	See *W.*
Winch.	*Winch.* A botanist, and writer on the flora of Northumberland and Durham.
With.	*Withering* An English botanist.
Wood. *Woods.*	*Woods.* An English writer on roses.
Wormsk.	*Wormskiold.* A Danish botanist.
Wulf.	*Wulfen.* A German botanist.
Z.	
Zeyh.	*Zeyher.* A German gardener.
Zucc.	*Zuccagni.* Superintendent of the Botanic Garden at Florence.

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ARBORETUM ET FRUTICETUM BRITANNICUM.

INTRODUCTION.

Though, from our title, the *Arboretum et Fruticetum Britannicum*, the reader may expect to find chiefly a history and description of the trees and shrubs which endure the open air in Britain, yet we mean to connect this history with that of the trees and shrubs of all similar climates throughout the world, in such a manner as to show what has been done in the way of introducing them, and what may be anticipated from future exertions. The *Arboretum et Fruticetum Britannicum* may, therefore, be considered as a General History of the Trees and Shrubs of Temperate Climates, but more especially of those of Britain.

Trees are not only, in appearance, the most striking and grand objects of the vegetable creation; but, in reality, they are those which contribute the most to human comfort and improvement. If cereal grasses and edible roots are essential for supplying food to sustain human existence, trees are not less so for supplying timber, without which, there could neither be the houses and furniture of civilised life, nor the machines of commerce and refinement. Man may live and be clothed in a savage, and even in a pastoral, state by herbaceous productions alone; but he cannot advance farther: he cannot till the ground, or build houses or ships, he cannot become an agriculturist or a merchant, without the use of trees.

Trees and shrubs also supply an important part of the food of mankind in many countries; besides all the more delicate luxuries of the table, and the noblest of human drinks in every part of the globe. The fruit of the palms, and of other trees of tropical climates, are as essential to the natives of those countries, as the corn and the edible roots of the herbaceous plants of temperate climates are to us. Wine, cider, arrack, and other liquors, are the products of trees and shrubs; as are also our more useful and exquisite fruits, the apple, pear, plum, peach, orange, mango, and many others. Not to insist in detail on the various uses of trees and shrubs, it may be sufficient to observe, that there is hardly an art or a manufacture, in which timber, or some other ligneous product, is not, in one way or other, employed to produce it.

The use of trees in artificial plantations, in giving shelter or shade to lands exposed to high winds or to a burning sun, and in improving the climate and general appearance of whole tracts of country; in forming avenues to public or private roads, and in ornamenting our parks and pleasure-grounds, is too well known to require to be enlarged on here.

Every one feels that trees are among the grandest and most ornamental objects of natural scenery: what would landscapes be without them? Where would be the charm of hills, plains, valleys, rocks, rivers, cascades, lakes, or islands, without the hanging wood, the widely extended forest, the open grove, the scattered groups, the varied clothing, the shade and intricacy, the contrast, and the variety of form and colour, conferred by trees and shrubs? A tree is a grand object in itself; its bold perpendicular elevation, and its commanding attitude, render it sublime; and this expression is greatly heightened by our knowledge of its age, stability, and duration. The characteristic beauties of the general forms of trees are as various as their species; and equally so are the beauty and variety of the ramifications of their branches, spray, buds, leaves, flowers, and fruit. The changes in the colour of the foliage of trees, at different seasons of the year, alone form a source of ever-varying beauty, and of perpetual enjoyment to the lovers of nature. What can be more interesting than to watch the developement of the buds of trees in spring, or the daily changes which take place in the colour of their foliage in autumn? — But to point out here all the various and characteristic beauties of trees, would be to anticipate what we shall have to say hereafter of the different species and varieties enumerated in our Work.

Shrubs, to many of the beauties of trees, frequently add those of herbaceous plants; and produce flowers, unequalled both for beauty and fragrance. What flower, for example, is comparable in beauty of form and colour, in fragrance, and in interesting associations, with the rose? The flower of the honeysuckle has been admired from the most remote antiquity, and forms as frequent an ornament of classic, as the rose does of Gothic, architecture. In British gardens, what could compensate us, in winter, for the arbutus and the laurustinus, or even the common laurel and the common ivy, as ornamental evergreens; for the flowers of the rhododendron, azalea, kalmia, and mezereon, in spring; or for the fruit of the gooseberry, currant, and raspberry, in summer? And what hedge plant, either in Europe or America, equals the common hawthorn? In short, if trees may be compared to the columns which support the portico of a temple, shrubs may be considered as the statues which surmount its pediment, and as the sculptures which ornament its frieze.

It is not to be wondered at, that trees and shrubs should have excited the attention of mankind in all civilised countries, and that our accumulated experience respecting them should be considerable. The first characteristic instinct of civilised society is, to improve the natural productions by which we are surrounded; and the next is, by commerce to appropriate and establish in our own country the productions of others, while we give our own productions in exchange; and, thus, the tendency of all improvement seems to be to the equalisation of enjoyment, as well as to its increase.

Notwithstanding the use, the grandeur, and the beauty of timber trees, it is a fact, that, compared with herbaceous vegetables, the number of species distributed over the globe is comparatively small. The palms, the banana, the pine-apple, and other plants, popularly or botanically considered as trees or shrubs, though some of them attain a great height and thickness, are, with very few exceptions, of no use as timber. Almost all the timber trees of the world, with the exception of the bamboo, belong to what botanists denominate the dicotyledonous division of vegetables; and, perhaps, there are not a thousand genera of this division on the face of the earth which afford timber trees exceeding 30 ft. in height. The greater part of these genera, supposing such a number to exist, must belong to warm climates; for in the temperate zones, and in the regions of warm countries rendered temperate by their elevation, the number of genera containing timber trees 30 ft. in height, as far as hitherto discovered, does not amount to a hundred. The truth is, that between the tropics the greater number of species are ligneous, while in the temperate regions there are comparatively few, and in the frozen zone scarcely any. It may naturally be expected, therefore, that, in the temperate regions, there should only be a few timber trees which are indigenous to each particular country. In Britain, for example, there are not above a dozen genera of trees, furnishing in all about thirty species, which attain a height exceeding 30 ft.; but there are other countries of similar climates, all over the world, which furnish other genera and species, to what is, at present, an unknown extent; and it is the beautiful work of civilisation, of patriotism, and of adventure, first, to collect these all into our own country, and next, to distribute them into others. While Britain, therefore, not only enjoys the trees of the rest of Europe, of North America, of the mountains of South America, of India, and of China, she distributes her own trees, and those which she has appropriated, to each of these countries respectively, and, in short, to all parts of the world; thus contributing almost imperceptibly, but yet most powerfully, to the progress and equalisation of civilisation and of happiness.

It must be interesting to the philosopher and the philanthropist, to know the precise position in which we stand relatively to this kind of interchange of natural productions. Much as has been done within the last century, there is reason to believe, from the number of countries unexplored, that this department of the civilisation of the great human family is yet in its infancy. Hence, in a work like the present, which professes to be a general history of the trees already in, or suitable for being introduced into, Great Britain, it seems desirable to commence with a general view of all other countries with reference to those trees which they contain which have been already introduced, or which, though we do not yet possess, we may expect to obtain and establish. This, therefore, will form Part I. of our Work; and we trust it will be found of considerable interest, by directing the attention of botanical collectors, travellers, and persons resident abroad, to specific objects of research.

In carrying this intention into effect, we shall commence by taking a general view of the trees and shrubs which were known to the ancients; we shall next give an enumeration of those which are indigenous to the British Islands; after which we shall treat of the introduction of foreign trees and shrubs into Britain, from the earliest records up to the end of the year 1834, the period at which this Work was commenced.

Having thus discussed the history of the trees and shrubs, native and foreign, of the British Islands, we shall next give a similar view of the indigenous and introduced trees and shrubs of all those other countries which possess, either by geography or altitude, climates in any degree analogous to that of Britain. This part of the Work will be concluded by a chapter on the literature of the trees and shrubs of temperate climates; in which the principal works which have appeared on the subject, both in Europe and America, will be enumerated.

The next division of our Work, Part II., will be devoted to the science of the study of trees. In this part, trees will be considered in all their various relations to nature and art. They will be considered as component parts of the general scenery of a country; in regard to the expression and character of particular kinds; in regard to the mode of delineating them pictorially, and of describing them popularly and botanically. They will also be considered with reference to uncultivated nature, to cultivated nature, and to man. This part will conclude with a summary of particulars to be taken into consideration, in preparing the description and natural and economical history of trees and shrubs, which are to follow as the third part of this Work.

Part III., which will form our next division, and that, indeed, which will comprise by far the greater part of the Work, will be the history and description of the different species and varieties of trees and shrubs, whether native or indigenous, useful or ornamental, at present cultivated in Britain.

We shall add to the perfectly hardy species the names, and short descriptive paragraphs, of some ligneous plants, which have been found by cultivators to be half-hardy in the climate of London; and of others, which, from their native countries and habits, we think not unlikely to prove so. We make this addition to the *Arboretum et Fruticetum Britannicum* for two purposes: in the first place, because, by trying species from all countries in the open air, some hitherto kept in hot-houses or green-houses may be found quite hardy; such having been the case with Kér*ria* japónica, *C*ydònia japónica, Hydrángea Hortén*sia*, *Aúcuba* japónica, and a number of others. We may add, also, that, though the nature of a species cannot be so far altered as to fit an inhabitant of a very hot climate for a cold one, yet that the habits of individuals admit of considerable variation, and that some plants of warm climates are found to adapt themselves much more readily to cold climates than others. Thus, the common passion flower, according to Dr. Walker, when first introduced into the Edinburgh Botanic Garden, lost its leaves during winter; but, in the course of a few years, the same plant retained the greater part of them at that season. The same author relates that plants of the common yew, sent from Paris to Stockholm to plant certain designs by Le Nôtre, laid out there for the king of Sweden, all died, though the yew is a native of the latter country, as well as of France.

Every gardener must have observed that the common weeds which have sprung up in pots, in hot-beds or in hot-houses, when these pots happen to be set out in the open air during winter or spring are killed, or have their leaves injured; whilst the same species, which have sprung up in the open ground, are growing around them in a flourishing condition.

The obvious conclusions from these facts are, that the habits of plants admit of a certain degree of change with regard to the climate which they will bear; that the degree in which this power exists in any plant is only to be ascertained by experiment; and that the only mode of making these experiments is, by trying in the open air plants usually kept under glass. There is reason to believe, from trials already made, that many of the trees and shrubs of Australia, and particularly those of New Zealand and Van Diemen's Land, will ultimately become so habituated to the climate of London, as to live through the winter against a wall, with scarcely any protection.

The second reason why we have included a number of half-hardy, or supposed half-hardy, trees and shrubs in this Work is, that we think there are few scenes in an ornamental garden or pleasure-ground of greater interest to a person having any knowledge of botany, however slight, than a conservative wall; that is, a wall covered with trees and shrubs, natives of foreign climates, which, though they may be killed to the ground during winter, yet exhibit a degree of luxuriance during the summer season, which they never can display in our green-houses or conservatories. Even were all such plants to be killed by frost every winter, and a reserve obliged to be kept in green-houses or pits to supply their place every spring, still, the splendour of their appearance during the summer months, and the novelty of their forms when compared with those of the spring, usually grown in the open air in Britain, would far more than compensate for the trouble incurred. When we take into consideration how easy it is to have such walls flued, and to heat the borders in front of them by small pipes of hot water, the capacities of a conservative wall and border appear great beyond anything we can at present calculate on; and we are persuaded that, were the subject of conservative walls warmly taken up by a spirited and wealthy individual, something would be produced in this way, as superior to our present green-houses and conservatories, as these are to the orangeries and green-houses of the time of Evelyn, or even of Miller. Having thus given our reasons for the introduction of half-hardy species of trees and shrubs into this Work, we shall next submit a few words with respect to our arrangement and treatment of the hardy species.

The general arrangement of the *Arboretum et Fruticetum Britannicum* will be that of the natural system; by which, whether in botany, zoology, or mineralogy, those objects are brought together which resemble one another in the greatest number of particulars. In describing each species, we shall follow the summary of particulars laid down in the last chapter of Part II.; giving in succession the identification of the name by botanists; the synonymes, botanical and vernacular; references to published engravings; the specific character; the popular description; the geography; the history; the poetical and legendary allusions; the properties and uses; the soil and situation; the propagation and culture; the accidents and diseases which the plant is liable to; the insects and parasitic plants which inhabit it; examples of its growth in the British Islands and on the Continent; and, lastly, its price in some of the principal British, Continental, and American nurseries.

In identifying the name of every species, or variety, with that given to it by botanical writers, we have been guided principally by our own examination of the living plant, and comparing it with existing engravings and descriptions; but we have also in part relied on the identifications of other botanists.*

In giving the synonymes, we have adopted the same rule as in giving the identifications.

Though we have used every exertion in our power to render this Work as correct, in a botanical and technical point of view, as possible, yet what we consider to be its great practical value (and that which will contribute more than any other cause to the main end which we have in view, viz. that of diffusing a taste for planting collections of trees and shrubs,) is, that we have described scarcely any tree or shrub which we have not seen ourselves, in a living state, within ten miles of London. Some exceptions are necessarily introduced; but, whenever this is done, it is either indicated by the paragraph relating to that tree or shrub being in very small type; or, by our indicating in words, or by some other means, that we have not seen the plant.

The shrubs, as far as practicable, we shall illustrate by engravings of botanical specimens, to be given along with the text; and all these will be to one and the same scale, of 2 in. to 1 ft. Engravings of the trees will be chiefly given in 8vo or 4to plates, apart from the text; and each of these plates will contain a pictorial portrait of the tree, and a botanical specimen. The pictorial portraits will be of two kinds: first, portraits of trees which have been planted ten or twelve years within ten miles of London, all to the same scale; and, secondly, portraits of full-grown trees, chiefly within the same limits, all to another scale.† The use of the first class of portraits is, to show, at a single glance, the comparative bulk which different trees attain in a given climate in a given period; as well as to indicate how far different kinds of trees, at this early age, show anything characteristic in their shape. The portraits of the full-grown trees, it is almost unnecessary to observe, are given in order to exhibit their ultimate magnitude and character. By merely glancing over these portraits, a planter will see at once, first, the effect which any given tree, purchasable in British nurseries, will produce at ten years' growth; and, secondly, what its appearance will be when it has arrived at its average size.

It will be found that in this Work we have, in various instances, reduced the number of species, and even, in some cases, of varieties; and this, had we been inclined to trust entirely to our own opinion, we might have carried to a much greater extent.

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* For example, in the case of the very first species described, Clématis Flámmula, having convinced ourselves that our plant was that described by De Candolle (*Prod.*, vol. i. p. 2.), we have not hesitated to give the identifications and synonymes quoted by that eminent author; adding, however, the identifications and synonymes of subsequent authors from our own examination of their works. In the plant referred to we have added to the identifications of De Candolle, Hayne's *Dendrologia* and Don's *Miller*.

† See the Explanatory References, which precede the Table of Contents.

It is well known to the cultivators of trees and shrubs, that there are a great many names of species enumerated in botanical works, our own *Hortus Britannicus* not excepted, as having been introduced into this country, which are not to be found in any nursery, or even botanic garden. These plants may have been introduced and lost; or the names may have been those of plants already in the country, reintroduced under new names. In either case, according to the present mode of compiling botanical catalogues, the introduction of these names in such catalogues (provided the authorities are given with them) is unavoidable, whether the things to which they apply are in existence or not. It is easy to conceive some of the evils which, in a practical point of view, result from this mode of making catalogues; but it is necessary to be at once a practical botanist and a practical gardener, to comprehend the whole of them. One evil is, that, when collectors of trees, for example, order the plants bearing these names from the nurserymen, they either do not receive any plants at all, or they receive something which they do not want, and, probably, something which they already have. Another evil is, that nurserymen, in order to supply the demand for novelties, or to establish or keep up the appearance of having an extensive collection, too frequently introduce names into their catalogues for which they cannot supply plants; or they introduce synonymes without indicating that they are such. The effect of this is, that gentlemen intending to form collections, finding their intentions frustrated, frequently give up the pursuit in disgust.

Imperfect as are the collections, and erroneous as is the nomenclature in public nurseries, it will readily be conceived how difficult it is for a practical gardener to acquire a tolerable knowledge of the trees and shrubs actually in the country; and it is evident that, without this knowledge on his part, it is not to be expected that any but the most common trees and shrubs can be recommended by him to his employers: indeed, no British gardener, who has not passed some time in acquiring a knowledge of his profession in some of our principal botanic gardens, in the Kew Garden, in the garden of the Horticultural Society, in that of Messrs. Loddiges, in the Botanic Garden at Edinburgh, or in some other garden which contains an arboretum, can be said to know the names of one fourth of the trees and shrubs already in the country. The *Arboretum et Fruticetum Britannicum*, we think, will go far to remedy this evil, by enabling both gardeners and their employers to ascertain, not only what trees are in the country, but where they may see them growing. Nurserymen, by referring to these living trees, will not only have an opportunity of correctly ascertaining the names of such as they already possess, but of supplying themselves with cuttings or plants of such sorts as they may not have in cultivation. The purchasers of trees, by always using the nomenclature of the *Arboretum Britannicum*, and being able to refer from it to the living specimens from which our engravings were taken, will at once insure certainty as to the kinds they obtain; and stimulate the nurserymen to accuracy, in regard to the names of those plants which they possess and propagate, and to the cultivation of a greater number of species and varieties. After the publication of our Work, it will be the fault of the nurseryman alone, if his nursery do not contain plants of all the species and varieties which we have figured and described.

Many persons, when recommended to plant, reply: "Of what use is it to plant at my age? I can never hope to live to see my plants become trees." This sort of answer does not, at first sight, appear surprising, if we suppose it to come from a person of sixty or seventy years of age; but we often hear it even from men of thirty or forty. In either case, such an answer is the result of a vulgar error, founded on mistaken and prejudiced notions. We shall prove its incorrectness by matters of fact. In the year 1830, there were many sorts of trees in the arboretum of Messrs. Loddiges which had been planted exactly ten years, and each of which exceeded 30 ft. in height. Most of these trees have since been cut down for want of room; but we have the names and the measurement of the whole of them. There are, also, at the present time (December, 1834), many trees in the arboretum of the London Horticultural Society's Garden at Chiswick, which have been only ten years planted, and which are between 30 ft. and 40 ft. in height. Why, then, should any one, even of seventy years of age, assign as a reason for declining planting, that he cannot hope to live to see his plants become trees? A tree 30 ft. high, practically speaking, will effect all the general purposes for which trees are planted: it will afford shelter and shade; display individual beauty and character; and confer expression on landscape scenery.

There is one subject which we shall occasionally touch on, in the history of particular species, and also in taking a general view of the trees of each genus, or of each natural order; and that is, the improvement which many species are probably susceptible of by cross-fecundation with other species nearly allied to them, or by procuring new varieties through the selection of remarkable individuals from seedlings raised in the common way. We shall also bear in mind the manner in which curious varieties are procured by the selection of shoots which present those anomalous appearances which gardeners call sports, and which, when propagated by grafting, continue to preserve their peculiarities. It should never be forgotten by cultivators, that all our most valuable plants, whether in agriculture, horticulture, or floriculture, are more or less indebted for their excellence to art. Our cultivated fruit trees are very different from the same trees in a wild state; and our garden and field herbaceous vegetables so much so, that, in many instances, not even a botanist could recognise the wild and the cultivated plant to be the same species. There is reason to believe that the same means by which we have procured our improved varieties of fruit trees will be equally effective in producing improved varieties of timber trees. A few species, such as the oak, the elm, the magnolia, &c., have had improved varieties raised from seed by accidental crossing, or by the selection of individuals from multitudes of seedlings; and variegated varieties, and varieties with anomalously formed leaves, or with drooping or erect shoots, have been procured from the sports of parts of different plants. But the mode of improvement by cross-fecundation is yet quite in its infancy with respect to timber trees; and to set limits to the extent and beauty of the new varieties which may be produced by it is impossible. There is no reason why we may not have a purple-leaved oak, or elm, or ash, as well as a purple-leaved beech; or a drooping sweet chestnut as well as a drooping ash. The oak is a tree that varies astonishingly by culture; and, when the numerous American varieties that have been introduced into this country shall have once begun to bear seed, there is no end to the fine hybrids that may be originated between them and the European species. In short, we see no difficulty in improving our ornamental trees and shrubs to as great an extent as we have done our fruit trees and shrubs; though we are as yet only procuring new species from foreign countries, which may be considered as the raw material with which we are to operate.

PART IV., which will form the last division of the *Arboretum et Fruticetum Britannicum*, will be devoted to selected lists of the trees and shrubs described, classified according to their different capacities for fulfilling the various purposes for which trees and shrubs are required by the planter and by the landscape-gardener. For the rest we refer to the Table of Contents.

The utility of such a Work as the *Arboretum et Fruticetum Britannicum* to the gardening world, and to the landed proprietor, will not, we think, be questioned. We shall say nothing, therefore, of the influence which it cannot fail to have in promoting a taste for the culture and spread of such foreign trees as we have already in the country; and in exciting a desire for introducing others from different parts of the world, and for originating new varieties by the different means employed by art for that purpose. One remark, however, we may be permitted to make on the use of such a Work as the *Arboretum et Fruticetum Britannicum* to gentlemen of landed property. Every proprietor of a landed estate is either a planter, or possesses trees already planted. If he is in the former case, he will learn from this Work to combine beauty with utility, by planting, in the outer margins of his natural woods or artificial plantations, and along the open rides in them, and in the hedgerows of his lanes and public roads, trees which are at once highly ornamental and more or less useful — in some cases, perhaps, even more useful — than the common indigenous trees for which they are substituted. If, on the other hand, his estate is already fully planted, he will learn from this Work how he may beautify his plantations by a mode which never yet has been applied in a general way to forest trees; viz., by heading down large trees of the common species, and grafting on them foreign species of the same genus. This is a common practice in orchards of fruit trees; and why it should not be so in parks and pleasure-grounds, along the margins of woods, and in the trees of hedgerows, no other reason can be assigned than that it has not hitherto been generally thought of. Hawthorn hedges are common everywhere; and there are between twenty and thirty beautiful species and varieties of thorn in our nurseries, which might be grafted on them. Why should not proprietors of wealth and taste desire their gardeners to graft some of the rare and beautiful sorts of tree thorns on the common hawthorn bushes, at intervals, so as to form standard trees, in such of their hedges as border public roads? And why should not the scarlet oak and the scarlet acer be grafted on the common species of these genera, along the margins of woods and plantations? Such improvements the more strongly recommend themselves, because, to many, they would involve no extra expense; and, in every case, the effect would be almost immediate. Every gardener can graft and bud; and every landed proprietor can procure stock plants from nurseries, from which he can take the grafts; or he may get scions from botanic gardens, the garden of the London Horticultural Society, that of the Caledonian Horticultural Society, or the Dublin Garden at Glasnevin.

Amateur landscape-gardeners, and architects who lay out the grounds of the houses they have designed, will be enabled, by this Work, to choose the kinds of trees which they think will produce the best effect in their plantations; and, what is of much more consequence, which will produce a certain effect within a given number of years. Indeed, the want of such a Work as the *Arboretum et Fruticetum Britannicum* to professional landscape-gardeners, and a conviction of the great use it would be of to practical gardeners, and to all persons engaged in laying out grounds, or in forming ornamental plantations, first suggested to us the idea of commencing the Work.

In modern landscape-gardening, considered as a fine art, all the more important beauties and effects produced by the artist may be said to depend on the use which he makes of foreign trees and shrubs. Our reasons for this are grounded on the principle that all art, to be acknowledged as such, must be avowed. This is the case in the fine arts: there is no attempt to conceal art in music, poetry, painting, or sculpture; none in architecture; and none in the geometrical style of landscape-gardening. Why should there be an attempt to conceal art in modern landscape-gardening? Because, we shall be told, it is an art which imitates nature. But, does not landscape-painting also imitate nature; and yet, in it, the work produced is acknowledged to be one of art? Before this point is settled, it is necessary to recur to what is meant by the imitation of nature, and to reflect on the difference between repetition and imitation. In what are called the imitative arts, it will be found that the imitation is always made in such a manner as to produce a totally distinct work from the thing imitated; and never, on any account, so like as to be mistaken for it. In landscape-painting, scenery is represented by colours on a flat surface; in sculpture, forms, which in nature are coloured, are represented in colourless stone. The intention of the artist, in both cases, is not to produce a copy which shall be mistaken for the original, but rather to show the original through the medium of a particular description of art; to reflect nature as in a glass. Now, to render landscape-gardening a fine art, some analogous process must be adopted by the landscape-gardener. In the geometrical style, he has succeeded perfectly, by arranging grounds and trees in artificial surfaces, forms, and lines, so different from nature as to be recognised at once as works of art. A residence thus laid out is clearly distinguished from the woody scenery of the surrounding country; and is satisfactory, because it displays the working of the human mind, and confers distinction on the owner as a man of wealth and taste. A residence laid out in the modern style, with the surface of the ground disposed in imitation of the undulations of nature, and the trees scattered over it in groups and masses, neither in straight lines, nor cut into artificial shapes, might be mistaken for nature, were not the trees planted chiefly of foreign kinds not to be met with in the natural or general scenery of the country. Every thing in modern landscape-gardening, therefore, depends on the use of foreign trees and shrubs; and, when it is once properly understood that no residence in the modern style can have a claim to be considered as laid out in good taste, in which all the trees and shrubs employed are not either foreign ones, or improved varieties of indigenous ones, the grounds of every country seat, from the cottage to the mansion, will become an arboretum, differing only in the number of species which it contains.

Though a taste for trees has existed from the earliest ages, that taste, in this country at least, may still be considered in its infancy. An English landowner is almost always a great respecter of trees generally, but seldom knows anything of particular sorts: he, therefore, cares very little for their individual beauties, and contents himself with being an indiscriminate admirer of them. Hence the unwillingness of most persons to cut down trees, however improperly they may be placed; or to thin out plantations, however much they may be crowded, and however great may be the injury which the finer foreign sorts are sustaining from the coarser-growing indigenous kinds. This indiscriminate regard for trees, and morbid feeling with reference to cutting them down when they are wrongly placed or too thick, principally results from ignorance of the kinds and of the relative beauty of the different species, and from want of taste in landscape-gardening. When we consider that it is not much above a century since American trees began to be purchasable in the nurseries of this country, this is not to be wondered at; and, more especially, when it is remembered that planters, generally speaking, have few opportunities of seeing specimens of these trees, so as to become acquainted with them, and thus to acquire a taste for this kind of beauty and its pursuit. The public botanic and horticultural gardens, and the private arboretums and collections of foreign trees and shrubs, now establishing throughout the country; and the mode now becoming general among nurserymen, of planting specimen trees in their nurseries; will tend to remedy this defect, by exhibiting living specimens: and our *Arboretum et Fruticetum Britannicum* will, we trust, aid in attaining the same end.

To artists, the *Arboretum et Fruticetum Britannicum* will not be without its use. It is well known that there are but few landscape-painters who possess that kind of knowledge of trees which is necessary to enable them to produce such portraits as would indicate the kind to a gardener or a forester. This defect, on the part of landscape-painters, arises partly from their copying from one another in towns, rather than from nature in the country; but, principally, from their want of what may be technically called botanical knowledge. The correct touch of a tree, to use the language of art, can no more be acquired without studying the mode of foliation of that tree, than the correct mouldings of a Grecian or Gothic cornice can be understood or represented without the study of Grecian or Gothic architecture. It is for this reason that it will always be found that ladies who reside in the country, and have studied botany, if they have a taste for landscape, will imitate the touch of trees better than professional landscape-painters. We assert it as a fact, without the least hesitation, that the majority of British artists (we may say, of all artists whatever) do not even know the means of acquiring a scientific knowledge of the touch of trees; almost the only works which have noticed the subject, and gone beyond the mere surface, being the *Remarks on Forest Scenery*, by Gilpin; and Kennion's *Essay on Trees in Landscape*. The perusal of the *Arboretum et Fruticetum Britannicum*, and the comparison of the botanical specimens with the touch to which they give rise in the portraits, will enable artists to investigate from our figures, and afterwards from nature, those differences in the points of the shoots, in the clustering and form of the foliage, and between the appearance of the foliage of spring and that of autumn, which give rise to the difference of touch necessary to characterise a species, and to mark the season of the year. Most artists who have studied trees from nature can give the touch of the oak with characteristic expression; and, by the study of the details of other trees, they may attain a touch which shall characterise them with equal force and accuracy. There is no work extant, however, from which an artist can study, correctly and scientifically, the touch of more species of trees than the oak, the ash, the weeping willow, and one or two others. In proof of this we may refer to the plates in Kennion's work above referred to, as one of the latest and best, where the engravings, in the greater number of instances, have not the slightest resemblance to the trees the names of which are written beneath them. How, under these circumstances, is it possible for an artist, who is not a botanist, and who does not reside in the country, to study the touch of trees? By the *Arboretum et Fruticetum Britannicum* he may acquire as much botanical knowledge as will enable him to distinguish with certainty all the different species of trees to be found in this country; and he will see, in the engravings of the botanical specimens as they appear in autumn, the foundations laid in nature for the different descriptions of touch. The London artist, in addition to the botanical knowledge which he may acquire from our work, may have recourse to the specimen trees (all near London) from which our portraits were taken. Artists generally, by becoming botanically acquainted with the trees, will be able to recognise them in their walks, or professional excursions; to study them under various circumstances, and, when they introduce them in their landscapes, to give their characters with fidelity.

Hitherto there has not been a sufficient demand for this kind of skill on the part of the artist; but, as foreign trees become better known by the public generally, it will be necessary for artists to keep their art on a level with the state of knowledge of the times in which they live. As the foreign trees which are every year being introduced into the country advance in size, the truth of this remark will become more and more obvious.

Having now given a general outline of the plan of our Work, and of the manner in which we propose to carry that plan into execution, we shall next proceed with Part I.

PART I.

GENERAL OUTLINE OF THE HISTORY AND GEOGRAPHY OF THE TREES AND SHRUBS OF TEMPERATE CLIMATES.

The use of the slight general outline which we propose now submitting to the reader is, partly, to show the consideration in which trees have been held in all ages and countries; but principally to record what has been done in the introduction of foreign trees into Britain; and to point out, from the ligneous productions of other countries having similar climates, what remains to be accomplished. We shall first notice to what extent a love for, and a knowledge of, trees existed among the nations of antiquity; and, next, give a general idea of the indigenous and introduced trees of those countries occupied by the modern nations of Europe. We shall commence with Britain; and shall take, in succession, France, Germany, and the other European countries. Afterwards, we shall give a slight sketch of the trees suited to temperate climates which are natives of Asia, Africa, America, and Australia.

CHAP. I.

OF THE KNOWLEDGE OF TREES AND SHRUBS WHICH EXISTED AMONG THE NATIONS OF ANTIQUITY.

The first notices which we have of trees are in the Sacred Writings. The tree of knowledge, and the circumstance of our first parents hiding themselves among the trees of the garden of Eden, are familiar to every one. Solomon appears to have collected all kinds of plants, and not only to have had an orchard of fruit trees, and trees bearing spices, but to have included in his grounds what are called barren trees, and among these the cedar. As this tree is a native of a cold and mountainous country at some distance from Judea, it shows that the practice of collecting trees from a distance, and from a different climate, to assemble them in one plantation or arboretum, is of the earliest date. The cedar, indeed, is frequently mentioned in Scripture; and both that and the fir (including, under this name, probably both *P*ìnus and *A*`bies, for some species of both are natives of Asia Minor and Greece) are said, in the book of Ezekiel, to be frequent in magnificent gardens. Large trees were then used as places for meeting under (as they are, in the East, to this day); and they were then, as now, planted in cemeteries

Trees are mentioned in the writings of Hesiod and Homer. The garden of Alcinous is said to have contained various sorts of fruit trees: and directions are given in Hesiod for lopping the poplar, and other species, for fuel; and felling the oak, the elm, and other kinds of large trees, for timber.

The principal trees of the *Egyptians*, according to Herodotus, were, the palm, the sycamore fig, the lote tree (Céltis austràlis, according to Mr. Hogg, *Gard. Mag.*, x. 291.), the olive, and the pomegranate. There are, we know, several other trees which are natives of Egypt; but these were probably thought most worthy of being recorded, as producing edible fruit.

The gardens of the *Persians* contained trees; and those in the garden of the younger Cyrus, at Sardis, were all planted with his own hand, in straight lines: the only mode which, at that early period, when scarcely any but indigenous trees were in use by planters, could convey the expression of art and design. In general, the trees which most attracted the attention of the ancients were those which bore edible fruits, produced spices, had a terebinthine odour, or possessed spreading branches to afford shade. Hence the frequent mention of the palm, the fig, the olive, the cinnamon, the camphor, the cypress, the sycamore fig, and the plane.

The only positive source of information respecting the trees known to the nations of antiquity, down to the time of the *Greeks*, is to be found in the works of Theophrastus. Stackhouse, in his edition of Theophrastus's *Historia Plantarum*, has endeavoured to show the modern botanical names for the plants of which Theophrastus has treated. Sprengel had done the same thing in his *Historia Rei Herbariæ.* Stackhouse has added to his own indentifications as many of those of Sprengel as are different from, and supplementary to, his own. From both we have selected the following list of the ligneous species. Stackhouse has stated in the preface to his second volume (his work is in two volumes, 1813, 1814), that Sprengel has carefully ascertained 357 of the kinds treated of by Theophrastus, and that he has passed over the rest, which are nearly as many in number, in silence; except remarking the circumstances which make them so ambiguous as to render the identifying of them hopeless. To some of the identifications which have been proposed, doubt appertains; and, in the case of the ligneous species, in the enumeration below, this doubt is expressed by notes of interrogation. It may be observed, that the greater number of these plants, according to Sibthorp's *Flora Græca*, are natives of Greece, and that most of those which are not, will endure the open air, or are cultivated, in that country. The whole of them, with scarcely any exceptions, are in British gardens and hot-houses; and all those which we have marked with a star, are indigenous to the British Isles. We have thrown the species into the groups indicated by the natural orders, in order to aid the memory of the botanical reader, and to facilitate generalisation.

R*anunculàceæ*. *C*lématis orientàlis.

C*apparídeæ*. *C*ápparis spinòsa.

C*istíneæ*. *C*ístus créticus and *s*alviæfòlius.

M*alvàceæ*. *G*ossýpium arbòreum; *M*álva tomentòsa; ? *Hi*bíscus, an arboreous species if a hibiscus.

T*iliàceæ*. *T*ìlia * europæ̀a.

Aurantiàceæ. *C*ìtrus *M*édica and Aurántium.

A*cerìneæ*. *À*cer * campéstre and * Pseùdo-*P*látanus.

A*mpélidæ*. *V*ìtis vinífera, 3 kinds, and índica.

R*utàceæ*. *R*ùta gravèolens.

C*elastríneæ*. ? *C*elástrus, the species was, in habit, a tree of middle size; * *E*uónymus europæ̀us.

R*hámneæ*. *R*hámnus *l*yciöìdes and ? *A*latérnus, *P*aliùrus aculeàtus, *Z*ízyphus vulgàris.

T*erebinthàceæ*. *P*istàcia *T*erebínthus and *L*entíscus, Balsamodéndron gileadénse, *R*hús *C*oriària más, *C*. fœ́mina, and *C*ótinus, ? Mangífera índica.

Leguminòsæ. *A*càcia arábica, Sénegal, *Cátechu*, myrrhífera *Stackhouse*, and polyacántha; ? *Tamaríndus* índica; *C*ércis *S*iliquástrum; *C*olùtea arboréscens and cruénta; Cathartocárpus Fístula; *C*ýtisus *L*abúrnum and "Maránt*a*;" *C*eratònia *S*íliqua; *Morínga* pterygospérma; *G*enísta lusitánica and ? *S*córpius (*S*pártium villòsum *Flora Græca*); Medicàgo arbòrea; ? Coronílla E′merus; *E*′benus crética; *A*strágalus *T*ragacántha.

R*osàceæ*. *R*òsa, the 5-leaved, the 10-leaved, the 20-leaved, and the 100-leaved; *R*ùbus * fruticòsus, * cæ̀sius, and * idæ̀us.

A*mygdàleæ*. *A*mýgdalus commùnis; ? *P*érsica vulgàris; *C*érasus * *P*àdus, durácina and ? Laurocérasus; *P*rùnus * insitítia and doméstica var. Juliàn*a*.

P*omàceæ*. *P*ỳrus * commùnis wild, and cultivated; * *M*àlus wild, and cultivated; * *À*ria, and crética; * *S*órbus, two varieties of; * ? torminàlis and ? a variety of; *M*éspilus * ? germánica, ? a variety of; *C*ydònia vulgàris, wild and cultivated; ? *Amelánchier* vulgàris; Cotoneáster * vulgàris; *C*ratæ̀gus *P*yracántha, *Azaròlus*, and * *O*xyacántha.

G*ranàteæ*. *P*ùnica *G*ranàtum.

Rhizophòreæ. Rhizóphora *Mángle*.

T*amariscíneæ*. * *T*ámarix gállica.

M*yrtàceæ*. *M*ýrtus commùnis.

C*ácteæ*. *O*púntia vulgàris.

? *Grossulàceæ*. ? *Ribes* * Grossulària.

Umbellíferæ. *B*ùbon *G*álbanum.

Araliàceæ. *H*édera * *H*èlix, and varieties of it.

C*aprifoliàceæ.* *C*aprifòlium * *P*ericlýmenum; ? Lonícer*a* pyrenàica; *V*ibúrnum * ? Lantàna, * ? *O*′pulus, and ? *T*ìnus; *S*ambùcus * nìgra.

C*órneæ.* *C*órnus más and * sanguínea.

Loranthàceæ. Loránthus europæ̀us; * *V*íscum álbum.

Compósitæ. Santolìna *r*osmarinifòlia; *H*elichrýsum *S*tœ̀chas; Kentrophýllum (Onobròma) arboréscens; *C*onýza saxátilis.

V*acciniëæ.* *V*accínium * *V*ìtis idæ̀a.

E*ricàceæ.* *E*rìca; *A*′rbutus *A*ndráchne and * *U*̀nedo; ? *R*hododéndron pónticum.

S*tyracíneæ.* *S*týrax officinàle.

E*benàceæ.* *D*iospýros *L*òtus.

O*leàceæ.* *O*̀lea europæ̀a, sylvéstris; *P*hillýrea latifòlia; ? *L*igústrum vulgàre; *O*′rnus europæ̀a; * ? *F*ráxinus excélsior.

A*pocýneæ.* ? *N*èrium Oleánder; * *V*ínca màjor, or * mìnor.

*Cord*iàceæ. Córd*ia Sebestèna* and *M*ýxa.

S*olàneæ.* Cápsicum frutéscens; *L*ýcium bárbarum and ? europæ̀um.

Labiàtæ. Lavándula Spìca; *R*osmarìnus officinàlis; *S*álvia tríloba, crética; *T*eùcr*ium* créticum; ? *M*arrùbium Pseudo-*D*ictámnus, Oríganum *D*ictámnus, Tournefórt*ii*, and ? ægyptìacum; *Saturèja* capitàta; *T*hýmus vulgàris, ? Mastichìna.

V*erbenàceæ.* *V*ìtex *A*′gnus cástus.

P*lantagíneæ.* *P*lantàgo ? *C*ýnops.

Chenopòdeæ. * Salicórnia fruticòsa.

L*auríneæ.* *L*aúrus nóbilis, var. platyphýlla and var. leptophýlla; *C*innamòmum vèrum.

Myrísticeæ. Myrística.

T*hymelæ̀æ.* *D*áphne *C*neòrum and serícea.

E*uphorb*iàceæ. *E*uphórb*ia P*ithyùsa, * *C*haràcias, and *M*yrsinìtes; * *B*úxus sempervìrens.

U*rtíceæ.* *F*ìcus *C*aprifìcus, Cárica, religiòsa, and *S*ycómorus *M*òrus nìgra.

U*lmàceæ.* *U*′lmus campéstris, ? and another kind; *C*éltis austràlis.

P*iperàceæ.* *P*ìper nìgrum.

J*uglándeæ.* *J*ùglans règia.

S*alicíneæ.* *S*àlix * álba, nìgra; * *H*èlix variegàta and babylónica; *P*ópulus * nìgra, * álba.

B*etulíneæ.* *B*étula * álba and ? *A*′lnus * glutinòsa; *A*′lnus oblongàta.

Cupulíferæ. Quércus ? *I*̀lex, *S*ùber, coccífera, *B*allòta, *Æ*′gilops, *Æ*′sculus, *C*érris, * *R*òbur, *f*agínea *Desf.*, and Tournefórt*ii*; * *C*órylus *A*vellàna; *C*astànea * vésca; *F*àgus * sylvática; *O*′strya vulgàris.

P*latàneæ.* *P*látanus orientàlis.

Coníferæ. Cèdrus Libàni; *Là*rix europæ`a; *P*ìnus halepénsis, *P*ínea, marítima, and * sylvéstris; *A*`bies excélsa and *P*ícea; *C*upréssus sempervìrens; *T*hùja aphýlla; *T*áxus * baccàta; *J*uníperus * commùnis, *O*xýcedrus, lýcia, and * nàna.

Cycàdeæ. *C*ýcas revolùta.

S*milàceæ.* *S*mìlax áspera; *R*úscus hypophýllum, * aculeàtus ? racemòsus.

P*álmæ.* *P*hœ`nix dactylífera, and four varieties; *Còcos* nucífera; *C*hamæ`rops; ? *Arèca Cátechu.*

G*ramíneæ.* *Bambùsa a*rundinàcea.

It thus appears that the total number of species known to Theophrastus was not less than 170, which belong to 53 groups or natural orders.

The *Romans* appear to have begun with a knowledge of all the trees possessed by the Greeks; and there are added to them, in their works, almost all the trees of the colder regions of Europe. It is evident that the Romans introduced trees into Italy from other countries; because frequent mention is made, by their agricultural writers, of the platanus, the cedar, the cypress, and other trees, which are not indigenous to Italy; and the cherry, the peach, and other fruits, we are informed, were imported from Persia. The pine, the bay, the plane, and the box appear to have been the favourite trees of gardens: the first, for its refreshing odour; the second, for its beauty, and because it was used in crowning martial heroes; and the third, on account of its shade. Pliny observes, "In old times trees were the very temples of the gods; and, according to that ancient manner, the plain and simple peasants of the country, savouring still of antiquity, do at this day consecrate to one god or other the goodliest and fairest trees that they can meete withall; and verily, we ourselves adore, not with more reverence and devotion, the stately images of gods within our temples (made though they be of glittering gold and beautiful ivory), than the very groves and tufts of trees, wherein we worship the same gods in religious silence. First, the ancient ceremony of dedicating this and that kind of tree to several gods, as proper and peculiar to them, was always observed, and continues to this day. For the great mighty oak, named esculus, is consecrated to Jupiter, the laurel to Apollo, the olive to Minerva, the myrtle to Venus, and the poplar to Hercules." (*Holland's Translation of Pliny's Natural History*, p. 357.)

The Romans cultivated trees for useful purposes, like the moderns. They planted coppice woods, for fuel, fence wood, and props for the vine; they had osier grounds, for producing hoop and basket willows; single rows of elms and poplars, for supporting the vine; and they had indigenous forests on the hills and mountains, for supplying timber for building and other purposes. The larch was a favourite tree among them; and instances are given by Pliny of the enormous size which it attained, of its durability, and its resistance to fire. The positive knowledge of the Romans, with respect to trees, may be found in Pliny's *Natural History;* and an enumeration of the species which that work contains, as far as they can be guessed at by modern botanists, is given by Sprengel in his *Historia Rei Herbariæ*, vol. i. It contains so few, in addition to those known to Theophrastus, that it seems unnecessary to introduce it here.

CHAP. II.

OF THE HISTORY AND GEOGRAPHY OF THE TREES AND SHRUBS NOW IN THE BRITISH ISLANDS.

The trees and shrubs now indigenous to, or cultivated in, the British Islands, including Ireland, the Channel Islands, and the other adjacent isles, naturally form two divisions; viz., those which are of spontaneous growth, and those which have been introduced or originated by the art and industry of man. In order to convey distinct ideas respecting the number and nature of the native woody plants which may be considered as aboriginal and permanent inhabitants of this country, we shall give an enumeration of them, arranged according to the natural orders to which they belong; and, in order to show the progress of the introduction of foreign species, the number introduced, and the individuals to whom we are indebted for such introductions, we shall treat of the native and foreign plants separately.

Sect. I. *Of the Native Trees and Shrubs of the British Isles.*

The native plants of any island may generally be considered as the same as those of the continent to which that island belongs; and hence we find that there are very few trees and shrubs which are indigenous to the north of France, Belgium, and the north of Germany, which are not also natives of Britain. In countries which have been long civilised, it appears difficult to determine what trees or plants are aboriginal, and what have been introduced; and even in wild countries, the same difficulties may be said to occur, since the seeds of the plants of one country may be, and undoubtedly are, carried to another country by birds and other animals, and may spring up there, mature themselves, and continue their species like aboriginal plants. It is probable that this process has gone on more or less in every country from its first existence; and thus, that the tendency even of nature, independently of human art, is to equalise the productions of similar climates.

Cæsar, in his *Commentaries*, states that he found the woods of Britain to contain the same trees as those of Gaul, with the exception of the abies and the fagus: "Materia cujusque generis, ut in Gallia est, præter fagum et abietem." This passage has given rise to much controversy, some authors supposing that Cæsar, by the word abietem, meant the wild or Scotch pine, which is a native of Britain. As, however, the Romans designated the silver fir abies, there can be little doubt that this was the tree alluded to by Cæsar; which not only does not grow wild in England, but was not introduced into this country till modern times. This solution of the passage is so simple, that it is difficult to imagine how any mistake can have arisen, particularly as Pliny speaks of the Scotch pine expressly as *P*ìnus sylvéstris (*Nat. Hist.*, lib. xv. and xvi.) The only reason appears to be, that the Scotch pine was formerly called the Scotch fir; and that the word abies, being considered to signify fir, was, without further examination, supposed to apply to that tree.

It is more difficult to reconcile Cæsar's assertion that he did not find the fagus in Britain, as that name is generally supposed to have been applied by the Romans to the common beech. Belon informs us that, in his time (*Les Obs.*, *&c.*, *en Grèce*, *en Asie*, *et autres Pays étrangers*, 1554), on Mount Athos and in Macedonia, the beech was called phega. It is wonderful, therefore, says Ray, that Cæsar should deny the beech to Britain: his doing so can only be satisfactorily accounted for, by supposing that by the word fagus he meant the *Q*uércus *Æ*'sculus, the phagos of Theophrastus. Mr. Long, in his *Observations on certain Roman Roads, and Towns, in the South of Britain*, p. 36., asserts that the tree Cæsar called fagus was the sweet chestnut, *F*àgus *C*astànea *L.* Mr. Long does not state his grounds for this opinion; but should the fagus of the Romans be our chestnut, and their castanea our beech, it would not only explain this difficulty, but do much to reconcile that passage in the *Georgics*, lib. ii. v. 71., where the fruit of the fagus appears preferred to that of the castanea. If we consider that by fagus Cæsar meant our common beech, all that can be concluded from his remark is, that the beech was not, in his time, discoverable in large masses in Kent; where, though it grows naturally, it is only found on the hills and not in the plains. Mr. Whitaker, in his *History of Manchester*, concludes that the Romans introduced the beech, partly from the assertion of Cæsar above alluded to, and partly from the name for the beech in the British language, foighe, faghe, faydh, being obviously derived from fagus. The name in the Anglo-

Saxon is bece; bèche, Fr.; and buche, Ger. The Scotch pine, Whitaker thinks, was a native of the island before the arrival of the Romans, though unknown to them at their invasion; and this pine, judging from the resinous quality of that dug up from peat bogs, he considers to have been of a different species from that now grown in England, and "the same assuredly with the Scotch fir of the highlands of Scotland." Here we know the author to be entirely mistaken; the species being every where the same, and the quality of the timber differing only in consequence of differences in the soil and situation. Sir Walter Scott fell into a similar error, when he stated, in the *Quarterly Review* (xxxvi. 580.), that our "Scotch fir was brought from Canada, not more than half a century ago," and that the true species, found in the north of Scotland in immense forests, grows with "huge contorted arms, not altogether unlike the oak." The conjectures of these two eminent writers only show that, however great may be their authority in other matters, they are not to be depended upon in what concerns trees. The Scotch pine must, unquestionably, have been indigenous in the highlands of Scotland in the time of Cæsar, though, in all probability, not to be met with, or rare, in England, at least in the southern counties.

The Romans, Whitaker observes, first brought among us, as their present names sufficiently show, "the platanus or plane, the tilia or teil, the buxus or box, the ulmus or elm, and the populus or poplar. The platanus passed from Asia to Sicily, thence into Italy; and, before the year 79, as Pliny informs us, it had reached the most northerly shore of Gaul. The apple Whitaker conjectures to have been brought into Britain by the first colonies of the natives, and by the Hædui of Somersetshire in particular; hence Glastonbury was distinguished by the title of Avellonia, or the apple orchard, previously to the arrival of the Romans. Before the third century, this fruit had spread over the whole island, and so widely, that, according to Solinus, there were large plantations of it in the "*Ultima Thule*." The Romans added "the pear, the damson, and the cherry, the arbor persica, perch, or peach; aprica, or apricot; and cydonia, or quince." Cherries were introduced from Pontus and Egypt into Italy by Lucullus, who conquered the former country; and they were carried into Britain within five years of the first settlement of the Romans in the country. Pears abounded in Italy, though it is uncertain at what time the Romans brought them into England. The damson was originally brought from Damascus to Italy, and thence to Britain, as the quince was from Crete, and the peach from Persia: the latter was common in Gaul in the time of Agricola.

The mulberry, the chestnut, the fig, and the sorbus, or true service, were introduced by the Romans. It is singular, that, not far from one of the very few habitats in which the true service is to be found in a wild state in Britain, viz., Wyre Forest in Worcestershire, the remains of a Roman villa were some years ago discovered (see *Arch. Mag.*, ii. p. 94.). It is not improbable that the tree referred to may be a descendant from a service tree planted in the orchard belonging to the adjoining Roman villa. The chestnut belongs to Sardis in Asia Minor; and it was brought thence to Tarentum and Naples, where it was cultivated with great success in the reign of Vespasian. That the chestnut was in Britain as early as the 12th century is placed beyond dispute by Giraldus Cambrensis, who, in speaking of the trees of Britain which Ireland wants, mentions the chestnut and the beech. Daines Barrington conjectures that the chestnut was probably brought into England from Spain; and Dr. Ducarel, who had a dispute with Barrington on the subject (see *Phil. Trans.*, lix. and lxi.), endeavours to prove that it is a native. Mr. Whitaker thinks, and, in our opinion, with great reason, that the tree was brought into Britain by the Romans. The medlar, according to Pliny, was brought into Italy from Greece, at what period is uncertain; as is also when it was introduced into Britain. The rose was brought from Italy by the Romans, the best being those of Prænestina and Campania. The rosemary and the thyme are also supposed to have been introduced by the Romans. The thyme, in the days of Vespasian, Pliny observes (xxi. 10.), so greatly overspread the plains in the province of Narbonne, that many thousands of cattle were brought every year from the distant parts of the country to fatten upon it.

In a paper on the subject of indigenous trees, in the *Archæologia*, by Daines Barrington, he lays down a test by which it may be known what trees ought to be considered as truly indigenous: that they grow in large masses, and spread over a considerable breadth of surface; that such masses never end abruptly, except where there is a sudden change in the soil or the substratum; and, that the trees or shrubs ripen their seeds kindly, and that when these seeds are dropped, they spring up freely. Applying these tests to what are commonly considered native trees, he rejects positively the sweet chestnut, the lime, the English elm; and the box. As doubtful, he reckons the *A*`cer Pseùdo-*P*látanus, and the white poplar (*P*ópulus álba), and even the yew, which, he says, is seldom found but in churchyards or in artificial plantations. He also doubts the spindle tree and the privet. A few lime trees, he thinks, such as those in Moor Park in Hertfordshire, and on the river Neath in Glamorganshire, have been introduced by the alien abbots and priors, when they came to visit their religious houses; but the tree was not generally planted till after the time of Le Nôtre, in the reign of Charles I., who introduced it extensively in avenues, as was then the custom in France. The antiquity of the sweet chestnut at Tortworth, which he had ascertained from Lord Ducie to be much exaggerated, he alleges to be no proof that the tree is indigenous. "The English, or narrow-leaved, elm," he says, "being much esteemed by the Romans, was probably introduced by them. The box," he erroneously (see *Herb.*, 1597, p. 1226.) states, "is not mentioned by Gerard, and," he adds, "the tree is found nowhere in an apparently wild state, except on Box Hill, where it was planted by Lord Arundel, who designed to build a house there, but who relinquished his intention from the want of water, and built one at Albury hard by." The only native evergreen trees and shrubs of Britain would thus appear to be the Scotch pine, the holly, the juniper, the furze, the spurge laurel, the butcher's broom, and the ivy. The furze Dr. Walker supposes not to be aboriginal, but to have been introduced from the mountains of Portugal, where it abounds. His reason is, that it is the only alleged indigenous shrub which flowers during winter; and that during severe winters it is killed to the ground, both in England and Scotland. According to these authors, the only indigenous evergreen trees are the Scotch pine and the holly; so that we are thus reduced to two evergreen trees and four evergreen shrubs; unless we include such under-shrubs as the heath, the Andrómed*a*, the *A*rctostáphylos U`va úrsi, &c., which do not generally attain the height of two feet.

Perhaps it may be thought unreasonable to allege that the lime and the yew are not natives of Britain, since they unquestionably are of countries which lie farther north; viz., the north of Germany and Sweden: but it must be remembered that the summers of these countries are hotter than those of England, in consequence of which, the lime ripens its seeds every year, which it seldom does in Britain. In countries without extremes either of heat or cold, such as the sea coast of Britain and great part of Ireland, many trees will live and thrive without ever producing seeds. Such trees may remain for ages in a country, without being one step nearer naturalisation than the day on which they were introduced. In Hasted's *Kent* it is stated that Sir John Speilman, who introduced the manufacture of paper into England from Germany, in the time of Elizabeth, and to whom Queen Elizabeth granted the manor of Portbridge in Dartford, introduced the lime tree. He is said to have brought over two trees with him in his portmanteau, and to have planted them at Portbridge, near the dwelling-house belonging to the powder mills; where, according to Hasted, they remained till they were cut down a few years previously to the time when he wrote, which was in 1776. (*Beauties of England, &c., Kent*, p. 562.) The lime, however, is represented by Turner as growing to a large size in 1562; so that the trees introduced by Speilman could not have been the first that were brought into the country. The *Tília europæ`a*, or common lime tree of the north of Europe, is stated by Turner and Gerard to be a native of England; but Ray says, that, though it is an inhabitant of Essex, it is never found in that county, or anywhere else, growing wild. The *Tília parvifòlia*, Ray seems to consider as a native.

The box is one of our most interesting "disputed trees;" for, if we are deprived of that and of the yew, neither of which Daines Barrington will allow us, our only evergreen trees will be the Scotch pine and the holly. Ray says that "the box grows wild on Box Hill, hence the name: also at Boxwell, on Cotswold in Gloucestershire, and at Boxley in Kent, where there were woods of this tree, according to Aubrey. It grows plentifully on the chalk hills near Dunstable." Turner says, "it groweth on the mountains in Germany plentifully, wild, without any setting; but in England it groweth not by itself in any place that I know, though there is much of it in England." (*Herbal*, edit. 1551, p. 159.) Parkinson says it is found in many woods, and that it is also planted in orchards. Evelyn considers it a native, as does Lambarde, in his *Perambulations of Kent*, in 1576. Some curious controversial matter on this subject will be found in the *Gentleman's Magazine*, vol. lvii., for 1787. One writer, T. H. White (p. 667.), says, "he called at the village of Boxley, and that, from the strictest enquiries, he was thoroughly convinced that Evelyn was wrong in considering the box to grow wild at this village." It has been said that the Earl of Arundel, who died in Italy in 1646, planted the box trees on Box Hill, with a view to building a house there; but this is denied by another writer, S. H., in the same magazine. "The Earl of Arundel," this writer says, "was a very curious man; and, having a house very near, at Dorking, it has been conjectured, but without foundation, that he planted Box Hill. The ground on which the box trees grow," he continues, "was not His Lordship's property;" and this is confirmed by a passage in Manning and Bray's *Surrey*, where that part of the hill which is covered with the trees is proved to have belonged to Sir Matthew Brown, long before the date when they were said to have been planted by the earl. "Various have been the disquisitions," say these authors, "concerning the antiquity of this plantation, which, however, for aught that has hitherto appeared to the contrary, may have been coeval with the soil. Here was formerly also a warren, with its lodge; in a lease of which, from Sir Matthew Brown to Thomas Constable, dated 25th August, 1602, the tenant covenants to use his best endeavours for preserving the yew, box, and all other trees growing thereupon; as also to deliver, half-yearly, an account of what hath been sold, to whom, and at what prices; and in an account rendered to Ambrose, his son, by his guardian, of the rents and profits for one year, to Michaelmas, 1608, the receipt of box trees cut down upon the sheepwalk on this hill is 50*l.* We have seen also an account of this manor, taken in 1712, in which it is supposed that as much had been cut down within a few years before as amounted to 3000*l.*" (*Manning and Bray's Surrey*, i. 560.) At present the only habitat of this tree in England is Box Hill; and though this circumstance cannot be considered as a proof that it is not indigenous, yet, as it is known that it does not ripen its seeds freely in this country, and seldom sows itself, either on Box Hill or anywhere else, when in a neglected state, we may fairly be allowed, when these circumstances are taken into consideration and conjoined with its Roman name, to doubt whether it be a native. It is so beautiful a tree, that its branches, like those of the bay, were probably in early use both in civic festivals and religious ceremonies; and it appears likely that it was not only introduced, but was cultivated, at an early period. At the same time, it must not be forgotten, that, in estimating the probability of a tree or plant being indigenous to a country, we must add to the other considerations mentioned that of its native habitat. Now the native site of the box is in woods of deciduous trees, where it is well known a plant may propagate itself by seeds, which would not do so on naked exposed situations. Taking this view of the subject, the box may yet be a native.

The English elm (*U*lmus campéstris) seldom ripens its seeds in England, though it does so freely in the neighbourhood of Paris. It can hardly be considered a native. The common sycamore ripens its seeds kindly, and in woods it sows itself, and the seeds spring up freely; but this may be said of various trees and shrubs which we know are foreign to the soil. The white poplar is found so seldom that it can hardly be considered a native. The yew is found in inaccessible acclivities, and other places where it must have been sown by birds, which is also the case with the spindle tree and the privet; therefore, their being natives cannot reasonably be doubted, except on something like positive evidence.

The trees and shrubs which were known to our Saxon ancestors were, the birch, alder, oak, wild or Scotch pine, mountain ash or rowan tree, juniper, elder, sweet gale, dog rose, heath, St. John's wort, and the mistletoe. All these are considered as aboriginal in the country; but, from the length of time that England was under the government of the Romans, it may reasonably be supposed that, in addition to the native trees and shrubs, there were in the country, when it was taken possession of by the Saxons, several which were natives of France, Spain, or Italy. To what extent this was the case cannot now be known; but it is sufficient for our purpose, that, in the present day, botanists consider all those plants indigenous to a country, which have existed in it beyond the memory of man or the existence of written records, and which propagate themselves freely by seed, without human agency.

The reputed native plants of Britain have been enumerated and described by different botanical authors: but it will be of little practical use in this case, and in the others which will come before us, to quote from any author who wrote previously to the time of Linnæus; and who, of course, could not adopt his admirable system of giving plants specific names composed of two words, instead of short Latin descriptions. The first author who enumerated the plants of England, and applied the Linnæan specific names, was Hudson, in his *Flora Anglica*, published in 1762; and those of Scotland were first described by Lightfoot, in his *Flora Scotica*, in 1775. Those of Ireland were first enumerated by Threlkeld, in 1727, before the Linnæan system was adopted, and there has not yet been any other flora of the country than a list published by Mr. T. Mackay in 1825. Fortunately, however, there are two recent works, the *English Flora* of Sir J. E. Smith, and the *British Flora* of Dr. Hooker, which contain an enumeration and description of all the plants indigenous to the British Isles, and from them we have compiled the following enumeration. In it are included all the plants, considered by botanists as ligneous, which grow in the British Islands, exclusive of varieties.

To such as are considered by many persons as doubtful natives, we have prefixed, not the point of interrogation used to signify botanical doubts, but the letters qu.

R*anunculàceæ*. *C*lématis Vitálba, a deciduous climber.

Berberídeæ. *Bérberis* vulgaris, a deciduous shrub, 10 ft. high.

C*istíneæ*. Heliánthemum *m*arifòlium, surrejànum, vulgàre, tomentòsum, and *p*oliifòlium, evergreen prostrate shrubs, from 6 in. to 1 ft. in height.

T*iliàceæ*. *T*ília europæ̀a qu., a deciduous tree, 50 ft.; grandifòlia (syn. platyphýlla) qu., a deciduous tree, 50 ft.; parvifòlia, a deciduous tree, 30 ft.

H*ypericíneæ*. *A*ndrosæ̀mum officinàle, a deciduous undershrub, 4 ft.; *H*ypéricum calycìnum qu., an evergreen undershrub, 1 ft.

A*cerineæ*. *A*cer campéstre, a deciduous tree, 20 ft. high; and *A*. Pseùdo-*P*látanus qu., a deciduous tree, 50 ft. high.

C*elastríneæ*. *E*uónymus europæ̀us, a deciduous tree, from 15 ft. to 20 ft. high.

I*licíneæ*. *I*lex *A*quifòlium, an evergreen tree, 30 ft. high.

Staphyleàceæ. Staphylèa pinnàta qu., a deciduous shrub, from 10 ft. to 15 ft. high.

R*hámneæ.* *R*hámnus cathárticus mas, c. fœm., deciduous shrubs, from 10 ft. to 15 ft. high; Frángula, a deciduous shrub retaining its leaves late, 5 ft. high.

Leguminòsæ. *C*ýtisus scopàrius, an evergreen shrub, of 5 ft.; *G*enísta tinctòria, an evergreen under-shrub, of 18 inches; *G.* pilòsa, a prostrate evergreen shrub; *G.* ánglica, a prostrate deciduous shrub; *U*'lex europæ'a, an evergreen shrub, of 5 ft.; *U.* nàna, an evergreen shrub, of 2 ft.; *U.* strícta, and *U.* e. fl. plèno.

R*osàceæ.* *R*òsa *c*innamòmea qu., rubélla, spinosíssima, involùta, Don*iàna*, grácilis, Sabìn*i*, villòsa, tomentòsa, Sherárd*i*, rubiginòsa, micrántha, Bórrer*i*, cæ'sia, sarmentàcea, bractéscens, dumetòrum, Fórster*i*, hibérnica, canìna, and sýstyla, all deciduous shrubs, from 3 ft. to 5 ft.; and *R.* arvénsis, a deciduous trailing shrub; *R*ùbus fruticòsus, plicàtus, *r*hamnifòlius, leucóstachys, glandulòsus, nítidus, affìnis, and *c*orylifòlius, all evergreen trailers; *R.* cæ'sius, a deciduous trailer; and *R.* suberéctus and idæ'us, deciduous under-shrubs, of 3 ft. Some more species, or reputed species, might be added to the evergreen trailers, from Dr. Lindley's *Synopsis* and our *Hortus Britannicus.* Potentílla fruticòsa, a deciduous shrub, above 3 ft.; *C*ómarum palústre, a prostrate deciduous under-shrub, of 1 ft.; *S*piræ'a *s*alicifòlia qu., a deciduous under-shrub of 3 ft.

P*omàceæ.* *P*ỳrus commùnis, *M*àlus, torminàlis, doméstica, aucupària, and pinnatífida, all deciduous trees, of between 20 ft. and 30 ft.; and *P. A*'ria, and *A*'ria intermèdia, deciduous trees, between 30 ft. and 40 ft.; *C*ratæ'gus Oxyacántha, and *M*éspilus germánica qu., deciduous trees, between 15 ft. and 20 ft.; and Cotoneáster vulgàris, a deciduous shrub, 4 ft. high.

A*mygdàleæ.* Cérasus *P*àdus and àvium, and *P*rùnus doméstica qu., deciduous trees between 20 ft. and 30 ft.; *P.* insitítia and spinòsa, deciduous shrubs or very low trees, of 10 ft. or 15 ft.

T*amariscíneæ.* *T*ámarix gállica qu., an evergreen shrub, between 5 ft. and 10 ft. high.

Grossulàceæ. *Rìbes* rùbrum, petræ'um, alpìnum mas, a. fœm., nìgrum, Grossulària qu., and U'va críspa qu., all deciduous under-shrubs, from 1 ft. to 3 ft. in a wild state.

Araliàceæ. *H*édera *H*èlix, a prostrate and clinging evergreen shrub.

C*aprifoliàceæ.* Caprifòlium itálicum qu., and *P*ericlýmenum, deciduous twiners; Lonícer*a* Xylósteum qu., a deciduous shrub, 10 ft. high; *S*ambùcus nìgra, a deciduous tree, 15 ft. or 20 ft. high; *V*ibúrnum *O*'pulus and Lantàna, deciduous shrubs or very low trees, from 10 ft. to 15 ft. high.

Córneæ. *C*órnus sanguínea, a deciduous shrub or very low tree, from 10 ft. to 15 ft. high.

Loranthàceæ. *V*íscum álbum mas., a. fœm., evergreen parasites.

V*acciniè*æ. *V*accínium Myrtíllus and uliginòsum, deciduous shrubs, 1 ft. high; and *V*ìtis idæˋa, an evergreen shrub, under a foot high; Oxycóccus vulgàris, a prostrate evergreen shrub.

E*ricàceæ*. Callùna vulgàris, a prostrate evergreen shrub. about a foot in height; *E*rìca *T*étralix cinèrea, ciliàris, mediterrànea, Mackai*àna*, and vàgans, and Dabœˋc*ia* *p*oliifòlia, D. *p.* álba, and cærùlea, and Andrómed*a* *p*oliifòlia, evergreen shrubs, under a foot high; *A*ˊrbutus *U*ˋnedo qu., an evergreen shrub, 15 ft. high; *A*rctostáphylos Uˋva úrsi, a prostrate evergreen shrub, and alpìna, a prostrate deciduous shrub; and Chamælèdon procúmbens, a prostrate evergreen shrub.

O*leàceæ*. *L*igústrum vulgàre, a deciduous shrub, 6 ft. high; *F*ráxinus excélsior, a deciduous tree, 80 ft. high; heterophýlla, a deciduous tree, 30 ft. high.

A*pocýneæ*. *V*ínca mìnor qu., an evergreen prostrate shrub.

S*olàneæ*. *S*olànum Dulcamàra, a deciduous trailer.

Chenopòdeæ. Chenopòdium fruticòsum, an evergreen shrub, between 3 ft. and 4 ft. high; *A*ˊtriplex *p*ortulacöìdes, a prostrate evergreen shrub, under a foot in height.

T*hymelæˋæ*. *D*áphne Laurèola, an evergreen shrub, 2 ft.; *Mezèreum* qu., a deciduous shrub, 3 ft.

E*læágneæ*. *H*ippóphae *r*hamnöìdes mas, *r*h. fœm., deciduous shrubs or very low trees, 15 ft.

E*uphorb*iàceæ. *E*uphórb*ia* *C*haràcias qu., and *a*mygdalöìdes, evergreen fruticulose shrubs, 2 ft. high; and *B*úxus sempervìrens qu., an evergreen tree, from 8 ft. to 20 ft. high.

U*lmàceæ*. *U*ˊlmus campéstris qu., a deciduous tree, of 80 ft.; *U.* suberòsa qu., màjor qu., and montàna, deciduous trees, of 40 ft.; and *U.* glàbra qu., a deciduous tree, of 60 ft.

Cupulíferæ. Quércus *R*òbur and sessiliflòra, deciduous trees, of 80 ft.; *C*astànea vésca qu., a deciduous tree, of 60 ft.; *F*àgus sylvática, a deciduous tree, of 70 ft.; *C*órylus *A*vellàna, a deciduous shrub, of 10 ft.; and *C*árpinus *B*étulus, a deciduous tree, of 35 ft.

B*etulíneæ*. *B*étula álba, a deciduous tree, of 40 ft.; and *B.* nàna, a deciduous under-shrub, of 2 ft.

S*alicíneæ*. *S*àlix frágilis mas and frágilis fœmina, Russell*iàna* mas, Russell. fœm., álba mas, a. fœm., álba var. cærùlea mas, a. c. fœm., deciduous trees, of 40 ft. high; *S.* triándra mas, t. fœm., lanceolàta mas, l. fœm., pentándra mas, p. fœm., petiolàris mas, p. fœm., vitellìna mas, v. fœm., decípiens mas, d. fœm., rùbra mas, r. fœm., cinèrea mas, c. fœm., *o*leæfòlia mas, *o.* fœm., hírta mas, h. fœm., càprea mas, c. fœm., acuminàta mas, a. fœm., and viminàlis mas, v. fœm., all deciduous trees, 20 ft. or 25 ft. high; Hoffmann*iàna* mas, H. fœm., *a*mygdálina mas, *a.* fœm., nígricans mas, n. fœm., Borrer*iàna* mas, B. fœm., nìtens mas, n. fœm., Davall*iàna* mas, D. fœm., Wulfen*iàna* mas, W. fœm., tétrapla mas, t. fœm., bícolor mas,

b. fœm., tenuifòlia mas, t. fœm., *m*alifòlia mas, *m.* fœm., purpùrea mas, p. fœm., *H*èlix mas, *H.* fœm., Lambert*iàna* mas, L. fœm., Forby*àna* mas., F. fœm., Crowe*àna* mas, C. fœm., *p*runifòlia mas, *p.* fœm., venulòsa mas., v. fœm., carinàta mas, c. fœm., Stuart*iàna* mas, S. fœm., arenària mas, a. fœm., lanàta mas, l. fœm., argéntea mas, a. fœm., Don*iàna* mas, D. fœm., aurìta mas, a. fœm., aquática mas, a. fœm., *c*otinifòlia mas, *c.* fœm., rupéstris mas, r. fœm., Anderson*iàna* mas, A. fœm., Forster*iàna* mas, F. fœm., sphacelàta mas, s. fœm., Smith*iàna* mas, S. fœm., and stipulàris mas, s. fœm., all deciduous shrubs, from 3 ft. to 15 ft. high; *p*hylicæfòlia mas, *p.* fœm., *v*acciniifòlia mas, *v.* fœm., *M*yrsinìtes mas, *M.* fœm., Dickson*iàna* mas, D. fœm., arbúscula mas, a. fœm., lívida mas, l. fœm., glaúca mas, g. fœm., fúsca mas, f. fœm., incubàcea mas, i. fœm., and *r*osmarinifòlia mas, *r.* fœm., all deciduous, from 1 ft. to 3 ft. high; herbàcea mas, h. fœm., reticulàta mas, r. fœm., fœ'tida mas, f. fœm., rèpens mas, r. fœm., and prostràta mas, p. fœm., prostrate deciduous shrubs, under a foot in height. Nearly the whole grow in moist ground. *P*ópulus álba qu. mas, a. fœm., trémula mas, t. fœm., nìgra mas, n. fœm.; and canéscens mas, c. fœm., deciduous trees, from 40 ft. to 60 ft. high.

M*yríceæ.* *M*yrìca *Gàle* mas, *G.* fœm., deciduous shrubs, 2 ft. high.

Coníferæ. *P*ìnus sylvéstris, an evergreen tree, from 60 ft. to 80 ft. high; *T*áxus baccàta mas, b. fœm., and var. hibérnica, evergreen trees, 20 ft. to 30 ft. high; *J*uníperus commùnis mas, c. fœm., evergreen shrubs, from 5 ft. to 7 ft. high; nàna mas, n. fœm., prostrate evergreen shrubs.

E*mpétreæ.* *E*'mpetrum nìgrum mas, n. fœm., evergreen prostrate shrubs.

S*milàceæ.* *R*úscus aculeàtus mas, a. fœm., and var. láxus, evergreen shrubs, from 1 ft. to 2 ft. high.

In estimating the heights of these trees and shrubs, we have supposed them to be growing in their natural and ordinary habitats. Under culture, or even in a wild state under favourable circumstances, many of them would grow higher, particularly the roses, the willows, and the fruticulose plants. The number of the latter might have been increased, by adding the carnation, the pink, &c., which, even as indigenous plants, are certainly as much fruticulose as *E*uphórb*ia C*haràcias, or *E. a*mygdalöìdes.

The above enumeration includes 71 genera, and about 200 species, nearly 100 of which are willows, roses, and brambles; and these species are comprised in 37 groups or natural orders. In greater detail, they are: —

27 deciduous trees, from 30 ft. to 60 ft. in height.
28 deciduous trees, from 15 ft. to 30 ft. in height.
1 evergreen tree, from 60 ft. to 80 ft., the Scotch pine.

3 evergreen trees, from 15 ft. to 30 ft., the box, the yew, and the holly.

65 deciduous shrubs, and very low trees, from 5 ft. to 18 ft.; including 21 roses and 32 willows.

26 deciduous shrubs, from 1 ft. to 5 ft.; including 6 roses and 10 willows.

5 evergreen shrubs, from 5 ft. to 15 ft.

7 evergreen shrubs, from 1 ft. to 5 ft.

1 evergreen climber, the ivy.

1 deciduous climber, the clematis.

2 deciduous twiners, honeysuckles.

8 evergreen trailers, brambles.

3 deciduous trailers; the *R*òsa arvénsis, the *S*olànum Dulcamàra, and the *R*ùbus cæ̀sius.

13 evergreen shrubs, or fruticulose plants, from 6 in. to, 1 ft. in height; such as the *V*accínium *V*ìtis idæ̀a, the ericas, Andrómed*a* *p*oliifòlia, &c.

10 deciduous shrubs, or fruticulose plants, from 3 in. to 1 ft. in height; such as *C*ómarum palústre, *V*accínium Myrtíllus, *S*àlix reticulàta, prostràta, &c.

SECT. II. *Of the Foreign Trees and Shrubs introduced into the British Isles.*

IF wild plants are said to follow those animals to which they supply food, cultivated plants are the followers of man in a state of civilisation. In all cases of taking possession of a new country, the first step of the settlers has been to introduce those vegetables which, in their own country, they knew to be the most productive of human food; because the natural resource of man for subsistence is the ground. In all temperate climates, the plants of necessity may be considered to be the cereal grasses and the edible roots. Trees, with the exception of such as bear edible fruit, are not introduced till a considerable period afterwards; because all new and uncivilised countries abound in forests of timber. It can only be when this timber becomes scarce, or when wealth and taste have increased to such an extent as to create a desire for new trees as objects of curiosity, that the practice takes place of cultivating indigenous trees, or of introducing new ones. Hence we find that, in England, all the timber required for the purposes of construction and fuel was obtained from the native forests and copses, till about the time of Henry VIII. In this reign and the next, Holinshed informs us that plantations of trees began to be made for purposes of utility; and we find, in the same reign, that attention began to be paid to the trees and shrubs of foreign countries, and that some few, even at that early period in the history of

British tree culture, began to be introduced into our gardens, as objects of rarity and value.

The ornamental trees, or the trees of curiosity, that would first be introduced into any country after those that recommended themselves by their fruit or their medicinal virtues, would be such as were generally planted about houses and in gardens, or such as bore conspicuous seeds. Hence the cypress, the bay, the box, the elm, the lime, and the plane, as being domestic shrubs and trees; and the chestnut, the ilex, the walnut, and the pine, as being trees with conspicuous seeds, would, we may suppose, be those that were first brought over by the Romans, or by the heads of religious houses, ambassadors, or travellers.

In tracing the introduction of foreign trees into this country, from the earliest ages to the present time, we shall first collect such notices as we have been able to obtain of the period from the invasion of the country by the Romans, to the end of the 15th century; and, next, take in succession the 16th, 17th, 18th, and 19th centuries.

SUBSECT. 1. *Of the Foreign Trees and Shrubs introduced into Britain by the Romans, and during the Middle Ages, to the End of the* 15th *Century.*

THERE can be no doubt whatever that the Romans introduced most of our cultivated vegetables and fruits. Some curious proofs of this are occasionally found in the springing up of Italian plants in the neighbourhood of the ruins of Roman villas, where ground, which had long remained in a state of rest, had been turned over in search of antiquities. Though, as far as we know, no trees or shrubs of Italy have sprung up in this manner from dormant seeds; yet there cannot be a doubt but that some of the trees and shrubs of the Romans would be cultivated in the gardens of their governors and generals, most of whom, it is understood, must have been practically acquainted with husbandry. Such trees would not only be interesting to them as reminding them of their native country, but they would serve to decorate and distinguish their residences, and command the admiration of the Roman army and of the natives.

We have seen, in the preceding chapter (p. 22.), that most of our fruit trees, and in all probability the plane, chestnut, walnut, lime, elm, and box, were introduced by the Romans. Many trees and shrubs introduced by the Romans, or by the monks of the middle ages, may have been afterwards lost; because this is, sooner or later, the case with all neglected plants that are placed in a climate which will not enable them to ripen their seeds.

In the 9th century, during the reign of Charlemagne, some exertions appear to have been made in France for the extension of orchards; but nothing has reached us respecting the barren trees and ornamental shrubs of that period, either in France or England.

In the tenth century, monasteries and other religious establishments began to abound in the country; and the monks and clergy, who were their principal occupants, were generally either natives of foreign countries, or had been educated in Italy. The occupants of monasteries have, in all times, been attached to gardening; and, among the plants which those of Britain probably introduced from Italy, there can be little doubt that fruit trees were included, and probably, also, some trees of ornament, and shrubs. The sweet bay and the arbutus, if they were not introduced by the Romans, were, in all probability, brought over by the monks. It is conjectured by Dr. Walker (*Essays on Nat. Hist.*), that some trees and shrubs were introduced from the Holy Land during the time of the crusades; and one of these, he thinks, was the English elm. In the dispute already noticed (p. 23.), between Daines Barrington and Dr. Ducarel, on the question of the sweet chestnut being indigenous, the latter refers to a record, dated in the time of Henry II., by which the Earl of Hereford grants to Flexby Abbey the tithe of all his chestnuts in the Forest of Dean. It appears highly probable that the chestnut, being so productive of human food in Italy in the time of the Romans, would be introduced by them, wherever they went, as one of the most useful of trees.

In the beginning of the 13th century, the apple appears to have been cultivated to some extent in Norfolk. In the 6th of King John (1205), Robert de Evermere was found to hold his lordship of Redham and Stokesly, in Norfolk, by petty serjeantry, the paying of 200 pearmains, and 4 hogsheads (modios) of wine made of pearmains, into the exchequer, at the feast of St. Michael yearly. (*Blomfield's Norfolk*, ii. 242. 4to edit., 1810.)

At the beginning of the 15th century, the rose appears to have been not only known, but in extensive cultivation. Sir William Clopton granted to Thomas Smyth a piece of ground called Dokmedwe in Haustede, for the annual payment of a rose, at the nativity of St. John the Baptist, to Sir William and his heirs, in lieu of all services, dated at Haustede, on Sunday next before the Feast of All Saints, 3 Henry IV. (1402). (*Cullum's Hawsted*, p. 117.)

In explanation of this deed, it may first be observed that ancient deeds are often dated on a Sunday, being executed in churches or churchyards, for the greater notoriety: in the second place, the rose was then in much more extensive use in cultivated society than it is now, when its place is partly occupied by the great variety of other flowers now in cultivation. The demand for roses formerly was so great, that bushels of them were frequently paid by vassals to their lords, both in France and England. The single rose paid as an acknowledgment was the diminutive representation of a bushel of roses; as a single peppercorn, which is still a reserved rent, is of a pound of peppercorns, a payment originally of some worth, descending by degrees to a mere formality. (*Histoire de la Vie privée des François*, ii. 221., and *Cullum's Hawsted*, 117, 118.)

The well-known story of the quarrel in the Temple Gardens, about 1450, which gave rise to the distinctions of the white and red rose in the wars of York and Lancaster, is in unison with the foregoing authorities.

Towards the end of this century, parks for hunting became common in England, and bushes in gardens were clipped; but we have no evidence that in either case foreign trees or shrubs were made use of; unless, with Daines Barrington, we reckon the yew tree as such. The yew is mentioned in these times as subjected to the topiary operations of the gardener; and there appears little doubt that it was then reckoned one of the principal garden shrubs, and almost the only evergreen one. The trees of the parks were, in all probability, wholly indigenous, and were left to propagate themselves, by shedding their seeds among rough herbage; and the extent of surface they covered was allowed to be curtailed by deer and other animals, or to extend itself, according to the abundance or scarcity of pasture.

Of the foreign trees and shrubs of Scotland and Ireland, at this remote period, scarcely any thing is known. James I. is said to have been an amateur of the fine arts, and to have been fond of gardens, and of grafting fruit trees. James III. had gardens in the neighbourhood of Stirling Castle; and the pear trees and chestnuts, which are known to have existed in Scotland at that period, may have been introduced from France, with which country Scotland was then, and for many years afterwards, on intimate terms, or by the Roman clergy. Dr. Walker mentions a sweet chestnut at Finhaven in Forfarshire, which, in 1760, was conjectured to be upwards of 500 years old, and which is supposed to have been the oldest planted tree in Scotland. (*Essays*, p. 29.)

Still less is known of the introduction of foreign trees and shrubs into Ireland. The arbutus is thought by some to be indigenous; and it is certain that in England, in the 15th century, it was called the Irish arbutus. By others, however, it is said to have been introduced into Killarney by the monks of St. Finnian, who founded the abbey of that name on the banks of the lake, in the 6th century.

SUBSECT. 2. *Of the Foreign Trees and Shrubs introduced into Britain in the* 16*th Century.*

THERE is no record which throws any light on the subject of the introduction of foreign trees into England previously to the time of Henry VIII. Fitzherbert, in 1523, wrote on planting and preserving trees for timber and fuel; and Googe, who translated Heresbachius in 1578, notices the same subjects. In Turner's *Names of Herbes* in 1548, the trees mentioned are, the almond, the apricot, the pomegranate, *C*ístus *s*alviæfòlius, rosemary, thyme, white jasmine, *S*pártium *j*únceum, the fig, the oriental plane, the elm, the sweet bay, the common black mulberry, the stone pine, the spruce fir, the *C*upréssus sempervìrens, and the savin. In his *Herbal* of 1562, he adds the peach, the walnut, and the rue. In 1568 he adds the lavender. It appears that foreign trees and shrubs were not altogether neglected in the royal gardens, in the time of Henry VIII.; since, in a survey of the royal palace at Nonsuch, in Surrey, in the succeeding century, there were, in the wilderness, lilacs, lime trees, yews, junipers, and hollies. L'Obel, who published his *Adversaria* in 1570, includes the *J*asmìnum frùticans, the *P*istàcia officinàrum, and the *G*enísta *S*córpius, among his woody plants. Tusser, in 1573, mentions the quince and the Damask rose. Grindal, Bishop of London, is said by Fuller to have introduced the German tamarisk, about the year 1560; but, according to Camden and Hakluyt, better authorities, about 1582. Grindal was visited at Fulham by the queen, who complained that the bishop had so surrounded his house with trees, that she could not enjoy the prospect from her chamber windows. Such excellent grapes were produced at Fulham by this prelate, that some were sent every year to the queen. (*Strype's Life of Grindal.*)

Wimbledon House, which was rebuilt by Sir Thomas Cecil in 1588, and surveyed by order of the parliament in 1649, was celebrated for its gardens and trees. In the several gardens, which consisted of mazes, wildernesses, knots, alleys, &c., are mentioned a great variety of fruit trees, and some shrubs, particularly " a faire bay tree," valued at 1*l.*, and " one very faire tree, called the Irish arbutis, very lovely to look upon, and worth 1*l.* 10*s.*" (*Lysons*, i. 397.) Gerard, the first edition of whose *Catalogue* is dated 1596, appears to have had several foreign trees and shrubs in his garden in Holborn; and, among others, althæa frutex, the laburnum, the Judas tree, six different kinds of roses, the laurustinus, the *D*iospỳros *L*òtus, the white mulberry, the nettle tree, the pinaster, the arbor vitæ, the yucca, and several others, as may be seen by the list below.

Gerard mentions having planted *P*hillýrea serràta in the Earl of Essex's garden at Barn Elms. (*Herbal*, edit. 1597, p. 1210.) Gough (*Brit. Topog.*, p. 61.) says, that, before the year 1597, Gerard had 1100 different plants and trees in cultivation. Tradescant is said by Gough to have been contemporary with Gerard, but he appears rather to belong to the 17th century. The only nursery which we read of as existing in the 16th century is that of Corbet, otherwise called Poynter, the father of Bishop Corbet, at Twickenham, mentioned by Sir Hugh Plat and by Ben Jonson. Gerard says that "Richard Poynter was a most cunning and curious grafter and planter of all manner of rare plants at Twickenham." (*Herb.*, 1597, p. 1269.)

It is uncertain whether Raleigh brought over any hardy American trees or shrubs, though it is highly probable that he did so, as he introduced the cherry tree into Ireland, and his manor at Sherborne, in Dorsetshire, is said to have been magnificently embellished with woods and gardens. Coker, author of a *Survey of Dorsetshire*, published in 1732, but which appears to have been written in the time of James I., says that Sir Walter Raleigh built in "the parke" adjoining the old castle "a most fine house, which hee beautified with orchardes, gardens, and groves of much varietie and great delight; soe that, whether that you consider the pleasantnesse of the seate, the goodnesse of the soyle, or the other delicacies belonging unto it, it rests unparalleled by anie in those partes." (p. 124.)

The park of Sherborne, after the death of Sir Walter Raleigh, came into the possession of the Earls of Digby, one of whom altered the house, and employed Brown to lay out the grounds. The centre part of the former mansion, which was built by Sir Walter Raleigh, still exists, and bears his arms, and the date 1574 over the windows. In the park there is a grove, said to have been planted by Sir Walter, which still retains his name. (*Beauties of England, &c., Dorsetshire*, p. 438.)

We can state nothing respecting the introduction of foreign trees into Scotland or Ireland during this century.

The trees and shrubs introduced into England during the 16th century, and the persons by whom they were introduced, cultivated, or recorded (the names of the latter being included in parentheses), according to the *Hortus Kewensis*, are as follow: —

1548.	*L*aúrus nóbilis	Italy	(Turner)
	*S*pártium *j*únceum	S. of Eu.	Lord Cobham
	*A*mýgdalus commùnis	Barbary	(Turner)
	*P*ùnica *G*ranàtum	S. of Eu.	Syon Garden
	*A*rmeniàca vulgàris	Levant	(Turner)
	*J*asmìnum officinàle	East Indies	(Turner)
	*R*osmarìnus officinàlis	South of Europe	(Turner)

1548.	*T*hỳmus vulgàris	South of Europe	(Turner)
	*H*yssòpus officinàlis	South of Europe	(Turner)
	*A*rtemís*ia A*brótanum	South of Europe	(Turner)
1548 or before.	*M*òrus nìgra	Italy	(Turner)
	*F*ìcus Cárica	South of Europe	(Turner)
	*P*látanus orientàlis	Levant	(Turner)
1548 or before.	*P*ìnus *P*ínea	S. of Europe	Richmond
	*A*ˋbies excélsa	North of Europe	(Turner)
	*J*uníperus *S*abìna	South of Europe	(Turner)
	*C*upréssus sempervìrens	Candia	Syon Garden
1551.	*C*ístus *s*alviæfòlius	S. of Eu.	Syon Garden
1562.	*R*ùta gravèolens	South of Europe	(Turner)
	*P*érsica vulgàris	Persia	(Turner)
	*P*érsica læˋvis	Persia	(Turner)
	Saturèja montàna	South of Europe	(Turner)
	*J*ùglans règia	Persia	(Turner)
	*J*uníperus *t*amariscifòlia	South of Europe	(Turner)
1568.	*C*olùtea arboréscens	France	(Turner)
	Lavándula Spìca and latifòlia	South of Europe	(Turner)
1569.	*C*lématis Viticélla	Spain	Hugh Morgan
1570.	*P*istàcia officinàrum	Levant	Gray
	*G*enísta sagittàlis	Germany	(Turner)
	*G*enísta *S*córpius	South of Europe	(Turner)
	*O*nònis rotundifòlia	Switzerland	Hugh Morgan
	Santolìna squarròsa	S. of Eu.	Hugh Morgan
	*J*asmìnum frùticans	South of Europe	(Turner)
	*V*ìtex *A*′gnus cástus	Sicily	(Turner)
	E′phedra distàchya	France	L'Obel
1573.	*R*òsa damascèna	Levant	(Tusser)
	*C*ydònia vulgàris	Austria	(Tusser)
	Santolìna *C*hamæcyparíssus	South of Europe	(Tusser)
1581.	*Q*uércus *I*ˋlex	S. of France	Whitehall Gar.
1582.	*T*ámarix germánica	Germany	Archbp. Grindal
1596.	*C*lématis pedicellàta	Majorca	Gerard
	*C*lématis cirrhòsa	Spain	Gerard
	*C*lématis Flámmula	France	Gerard
	*C*ístus incànus	South of Europe	Gerard
	*H*ibíscus syrìacus	Syria	Gerard
	*C*ýtisus *L*abúrnum	Continent of Eu.	Gerard
	*C*ýtisus alpìnus	Continent of Eu.	Gerard
	*C*ýtisus spinòsus	South of Europe	Gerard
	Coronílla *E*′merus	France	Gerard
	Medicàgo arbòrea	Italy	Gerard
	*C*ércis *S*iliquástrum	South of Europe	Gerard
	*R*òsa centifòlia	South of Europe	Gerard

1596.	*R*òsa lùtea	Germany	Gerard
	*R*òsa moschàta	Barbary	Gerard
	*R*òsa *c*innamòmea	France	Gerard
	*R*òsa provinciàlis	France	Gerard
	*R*òsa gállica	France	Gerard
	Amelánchier vulgàris	South of Europe	Gerard
	*P*lantàgo *C*ỳnops	South of Europe	Gerard
	*P*aliùrus aculeàtus	South of Europe	Gerard
	*R*hús Coriària	South of Europe	Gerard
	Lonícer*a* alpígena	Switzerland	Gerard
	*C*órnus más	Austria	Gerard
	*P*hiladélphus coronàrius	South of Europe	Gerard
	Tenòr*ia* fruticòsa	South of Europe	(Miller)
	*S*ambùcus racemòsa	South of Europe	Gerard
	*V*ibúrnum *T*ìnus	South of Europe	Gerard
	*V*ibúrnum *T.* lùcida	Spain	Gerard
	*V*ibúrnum *T.* strícta	South of Europe	Gerard
	*A*rtemís*ia* *S*antónica	Siberia	Gerard
	*D*iospỳros *L*òtus	Italy	Gerard
	*S*álvia tríloba	South of Europe	Gerard
	*P*hlòmis fruticòsa and lanàta	Spain	Gerard
	Saturèja capitàta	Levant	Gerard
	*M*òrus álba	China	Gerard
	*C*éltis austràlis	South of Europe	Gerard
	*P*ìnus *P*ináster	South of Europe	Gerard
	*T*hùja occidentàlis	North America	Gerard
	Yúcca gloriòsa	North America	Gerard
	*R*úscus hypoglóssum	Italy	Gerard
1597.	*R*òsa álba	Crimea	Gerard
	*C*érasus *C*hamæcérasus	Austria	Gerard
	Lonícer*a* nìgra	Switzerland	Gerard
	Syrínga vulgàris	Persia, or probably Hungary, of which country it has been lately discovered to be also a native (*Bot. Mag.*, 3278., and *Gard. Mag.*, ix. 706.)	Gerard
	*P*hillýrea angustifòlia, and the varieties, mèdia, virgàta, péndula, *o*leæfòlia, *l*igustrifòlia, læ̀vis, *i*licifòlia, latifòlia, and oblìqua	S. of Eu.	Earl of Essex
	Períploca græ̀ca	Syria	Gerard
	*S*álvia officinàlis	South of Europe	Gerard
	*S*tỳrax officinàle	Italy	Gerard
	*D*áphne Gnídium	Spain	Gerard

It will be observed, from the foregoing list, that the date of the first introduction, or rather, that of the first mention made in books, of foreign woody plants in England, is 1548, when sixteen were introduced. Among these were the sweet bay, the almond, the apricot, the pomegranate, the mulberry, the platanus, the stone pine, the common spruce fir, the cypress, and the savin juniper. The names of the introducers, or first cultivators, are almost entirely unknown, and, indeed, it is probable that most of the plants named at this early period had been in the country many years previously; some of them, as the rosemary, the thyme, the southernwood, the sweet bay, the apricot, &c., possibly from the time of the Romans; or, at all events, from the period of the establishment of religious houses in England. Among these plants, there are only two from ultra-European countries: the almond, from Barbary; and the jasmine, from the East Indies.

From 1551 to 1596, during the reign of Mary and the greater part of that of Elizabeth, twenty-four plants were first recorded, among which were the peach, the nectarine, and the walnut, from Persia; and the damask rose, the quince, and the *Quércus I'lex*. The names of the introducers are not known, with few exceptions; such as that of Hugh Morgan, apothecary to Queen Elizabeth; Gray, a London apothecary, mentioned by L'Obel; L'Obel, a Fleming, who was afterwards botanist to James I.; and Dr. Grindal, who was bishop of London, and afterwards archbishop of York and Canterbury, during the greater part of the reign of Elizabeth. From 1596 to the end of the century, forty-six different species were introduced, and upwards of thirty of these were first recorded by Gerard. Among these were, the English and Scotch laburnums, the althæa frutex, the Judas tree; the musk, the yellow and the hundred-leaved roses; the cotoneaster, Christ's thorn, *Córnus más*, the common syringa, the laurustinus, the lilac, and the phillyrea. Most of these are from the continent and south of Europe; and there are, in this period, also, the arbor vitæ and the yucca, from North America.

Thus, the total number of foreign woody plants which are known to have been cultivated in Britain during the 16th century is only eighty-four, exclusive of two varieties of the laurustinus, and nine of the phillyrea.

It is impossible, at this distance of time, to ascertain the names of all the persons to whom we are indebted for the introduction of these plants; but it is certain that the merit of the first cultivation of the greater part of them belongs decidedly to Gerard.

John Gerard, Pulteney informs us, was born at Nantwich in Cheshire, in 1545, educated as a surgeon, and patronised in London by Lord Burleigh, who had at that time the best collection of plants in the kingdom. Gerard superintended this nobleman's garden, which was in the Strand; Gerard himself living in Holborn, where he had a physic garden, considered to be at that time the most remarkable in England for the number and variety of its productions. This garden appears by the old maps to have been situated on the brow of the hill between what is now Ely Place, and what was formerly the Fleet River, but what is now called Field Lane, the stream being arched over. Gerard appears to have practised as a surgeon and apothecary, supplying his prescriptions from his garden. He was the author of several works, the principal of which are his *Catalogue* and his *Herbal.* The first edition of the former is dedicated to Lord Burleigh, and the second to Sir Walter Raleigh. It enumerates nearly 1100 sorts of plants, of foreign and domestic growth, all of which (as attested by L'Obel) were to be found in his garden in Holborn. Gerard died about the year 1607, highly respected by the college of physicians and by all his contemporaries.

SUBSECT. 3. *Of the Foreign Trees and Shrubs introduced into Britain in the* 17*th Century.*

TRADESCANT appears to have come to England towards the end of the preceding century. Wood says he was a Dutchman; that he was in the service of Lord Treasurer Salisbury, Lord Wootton, and the Duke of Buckingham; and that, about 1629, he obtained the title of gardener to Charles I. He is said to have travelled over a great part of Europe, and to have gone into Barbary, Greece, Egypt, and other Eastern countries, in quest of plants and natural curiosities. He had a garden at Lambeth, and a museum there; in the former of which he cultivated many plants, and, as appears by a *Catalogue* published by his son, in 1656, some trees and shrubs. Tradescant's garden and museum were probably not commenced till after he had retired from the service of private noblemen, and entered into that of the king, which would give its origin about 1630. Tradescant's son travelled in Virginia, and introduced various new plants from that country. Tradescant, senior, died about 1652. Tradescant's garden was visited, in 1749, by Dr. Mitchell and Dr. (afterwards Sir) William Watson, F.R.S.; but at that distant period they found very few trees. Among these, however, were Schubért*ia* dísticha, Robín*ia* Pseùd-*A*càcia; *R*hámnus cathárticus, about 20 ft. high, and nearly a foot in diameter; an *A*ristolòchia, and several mulberry trees. (*Phil. Trans. Abr.*, x. 740.) These were but a few of the species of trees cultivated by Tradescant; as appears by the *Catalogue* published by his son, and by the list at the end of this section.

From a memorandum by Dr. Gray, in his copy of the *Horti Regii Hamptoniensis*, &c., now in the British Museum, we learn that many of the plants enumerated in that catalogue were brought from Soesdyke in Holland, the seat of Mr. Bentinck, afterwards Earl of Portland. The gardens of Holland were at that time the richest in Europe.

The great introducer of foreign trees in this century was Dr. Compton, who was the bishop of London from 1675 to 1713, and who may truly be said to have been the father of all that has since been done in this branch of rural improvement. Bishop Compton was the youngest son of Spencer, Earl of Northampton; he was made bishop of Oxford in 1674, and was translated to the see of London in the following year. He was a zealous protestant and a most excellent man. He lived a retired life at Fulham, attending to his episcopal duties and to his garden.

In the 32d book of Ray's *Historia Plantarum*, written in 1686, in which he treats of plants imperfectly known, there is a chapter on the rare trees and shrubs which he saw in the garden of Bishop Compton at Fulham. Among these are enumerated the tulip tree, the magnolia, the sassafras, the tree angelica (Aràlia spinòsa), the hickory, the box elder, the liquidambar, the Constantinople nut, some species of *C*ratæ`gus, some of *R*hús, some of *C*órnus, and some of *A*´triplex. Bishop Compton died in 1713, at the age of 81 years. His garden was visited by Sir William Watson in 1751, 48 years after his death; and he gave the following account of this bishop and his garden to the Royal Society: — "Dr. Henry Compton," he observes, "planted a greater variety of curious exotic plants and trees, than had at that time been collected in any garden in England. This excellent prelate presided over the see of London from the year 1675 to 1713; during which time, by means of a large correspondence with the principal botanists of Europe and America, he introduced into England a great number of plants, but more especially trees, which had never been seen here before, and described by no author; and in the cultivation of these (as we are informed by the late most ingenious Mr. Ray) he agreeably spent such part of his time as could most conveniently be spared from his other more arduous occupations. From this prelate's goodness, in permitting, with freedom, persons curious in botany to visit his garden, and see therein what was to be found nowhere else; and from his zeal in propagating botanical knowledge, by readily communicating to others, as well to foreigners as to our own countrymen, such plants and seeds as he was in possession of, his name is mentioned with the greatest encomiums by the botanical writers of his time; viz., by Hermann, Ray, Plukenet, and others. As this prelate's length of life and continuance in the see of London were remarkable, so we find the botanists, who wrote after Mr. Ray, most frequently mentioning in their works the new accessions of treasures to this garden; and of this you meet with a great variety of examples in the treatises of Dr. Plukenet, Hermann, and Commelyn. Botanical much more even than other worldly affairs are subject to great fluctuations, and this arises not only from the natural decay of vegetables, and their being injured by the variety of seasons, but also from the genius and disposition of the possessors of them. So, here, upon the death of Bishop Compton, all the green-house plants and more tender exotic trees were, as I am informed by Sir Hans Sloane, given to the ancestor of the present Earl Tylney at Wanstead. And as the successors of this bishop in the see of London were more distinguished for their piety and learning than for their zeal in the promotion of natural knowledge, the curiosities of this garden were not attended to, but left to the management of ignorant persons; so that many of the hardy exotic trees, however valuable, were removed to make way for the more ordinary productions of the kitchen-garden." (*Phil. Trans.*, xlvii. 243.)

Collinson, speaking of Bishop Robinson, Dr. Compton's successor, says, he was a man of "no such taste" as Bishop Compton. "He allowed his gardener to sell what he pleased, and often spoiled what he could not otherwise dispose of. Many fine trees, come to great maturity, were cut down, to make room for produce for the table. Furber of Kensington, and Gray of Fulham, augmented their collections from this source, with plants not otherwise to be procured."

The following are the principal trees and shrubs which Sir William Watson found in the bishop's garden in 1751: —

A*cerìneæ.* *A*ˋcer rùbrum, *p*latanöìdes; *Negúndo f*raxinifòlium.

Hippocastàneæ. Pàv*ia* rùbra.

T*erebinthàceæ.* *P*istàcia officinàrum, *R*hús typhìna.

Leguminòsæ. Robín*ia* Pseùd-*A*càcia, Gledítsch*ia* triacánthos, *C*ýtisus alpìnus, *C*ércis *S*iliquástrum.

A*mygdàleæ.* *C*érasus Laurocérasus.

P*omàceæ.* *M*éspilus *p*runifòlia ?

E*ricàceæ.* *A'*rbutus *U*ˋnedo.

E*benàceæ.* *D*iospýros virginiàna.

O*leàceæ.* *O'*rnus europæˋa, rotundifòlia; *Syrínga* pérsica var. laciniàta.

L*aurìneæ.* *L*aúrus *Benzòin.*

U*lmàceæ.* *C*éltis.

J*uglándeæ.* *J*ùglans nìgra.

Cupulíferæ. *Q*uércus *S*ùber, *I*ˋlex, álba; *C*órylus rostràta ?

Coníferæ. *C*èdrus Libàni, *L*àrix europæˋa; *P*ìnus *P*ínea, *P*ináster; *A*ˋbies *P*ícea; *C*upréssus, the male cypress, the female cypress; *J*uníperus virginiàna.

Smilàceæ. *R*úscus hypoglóssum, racemosus.

These articles belong to 15 orders, or natural groups, and include 34 trees and shrubs.

A survey of the old trees at Fulham Palace was made by Lysons in 1793, and again in 1809, and published in Lysons's *Environs of London;* by which it appears that several of the trees mentioned by Sir William Watson were still in existence, and in a growing state. The girts of the following trees, taken at these two different periods, are here given from Lysons, as taken at 3 ft. from the ground, to which we have added the dimensions of such as are now (January, 1835) still in existence, which we are enabled to do through the kindness of Dr. Blomfield, the present bishop. We saw the trees ourselves in October last, and found most of those below mentioned still in a growing state, with some robinias and others in a state of venerable decay.

	Girt in 1793.		Girt in 1809.		Girt in 1835.		Computed Height in 1793 & 1835.
	ft.	in.	ft.	in.	ft.	in.	feet.
Negúndo *f*raxinifòlium, or ash-leaved maple, planted in 1688 - -	6	4	7	1½	—		45
*A*ˋcer rùbrum, scarlet-flowered maple	4	3	—		—		40
*J*ùglans nìgra, black walnut tree -	11	2	11	5½	14	6	70
*Q*uércus álba, white oak - -	7	11	8	1½	11	5	70
*Q*uércus *I*ˋlex, evergreen oak - -	8	0	9	1	10	3	50
*Q*uércus *S*ùber, cork tree - -	—		8	4	9	5	50
*C*upréssus sempervìrens, upright cypress	2	3	—		—		30
*J*uníperus virginiàna, Virginian red cedar - - - -	2	5	—		—		20
*P*ìnus *P*ináster, cluster pine - -	10	0	10	1	11	10	80

"There were also," says Mr. Lysons, in 1793, "the *Q*uércus *S*ùber, the *C*ýtisus *L*abúrnum, the Robín*ia* Pseùd-*A*càcia, and the *P*ìnus *C*èdrus, mentioned by Sir William Watson. The cedar of Lebanon was first planted at Fulham in 1683; the largest, of two measured in 1793, was only 7 feet 9 inches in girt." "Near the porter's lodge," he continues, "are some limes of great age, one of which measured, in 1793, 13 feet 3 inches in girt. It is most probable that they were planted by Bishop Compton about the year of the Revolution (1688), when the fashion of planting avenues of limes was introduced into this country from Holland, where they ornamented the Prince of Orange's palaces."

"Upon visiting the gardens at Fulham again in 1809," Lysons observes, "I could not find the *C*upréssus sempervìrens, the *J*uníperus virginiàna, or the *A*ˋcer rùbrum. The following trees still remain, and they will no doubt be regarded with veneration by the botanist, as the parent stocks of their respective races in the kingdom. The *A*ˋcer *Negúndo,* the girt of which, at three feet from the ground, is now

(1809) 7 ft. 1½ in.; the *J*ùglans nìgra, 11 ft. 5½ in.; the *P*ìnus *P*ináster, 10 ft. 1 in.; the *Q*uércus *I*'lex, 9 ft. 1 in.; the *Q*uércus álba, 8 ft. 1½ in.; the *Q*uércus *S*ùber, of which I had not a satisfactory measure in 1793, is now (1809) 8 ft. 4 in. in girt; the largest cedar now measures 8 ft. 8¾ in. in girt; another, in a court of the palace, about 7 ft.: it is probable that the latter has been lessened in girt, from having been drawn up by its situation to a remarkable height. The lime tree above mentioned now measures 14 ft. 1 in. in girt. The *C*ýtisus *L*abúrnum is an old decayed tree in the close (without the lodge) near the moat, about 3 ft. in girt. There are two of the Robín*ia* Pseùd-*A*càcia, one near the porter's lodge, and one on the lawn near the moat; they are both in a state of great decay, and their trunks in such a state as not to admit of measurement."

All the trees mentioned in the above extract, except those contained in the table, the large limes, the remains of the robinia, and one or two others, are decayed or taken down; the grounds having undergone several alterations during the occupancy of Bishop Porteus, between 1800 and 1816. Both Bishop Porteus and the present bishop have added considerably to the collection.

It would be interesting to know the means by which Bishop Compton procured his trees and shrubs from America, and who were the botanical collectors of that day. Several may have existed whose names are now lost. It appears highly probable that most of the American trees and plants at Fulham were introduced by the Rev. John Banister, who was sent by the bishop as a missionary to Virginia. John Banister, according to Dr. Pulteney (*Sketches*, &c., vol. i.), was one of the first British collectors in North America. He published a *Catalogue* of the plants he observed there, dated 1680. He is mentioned repeatedly by Ray, as having introduced many plants. Banister was one of the early martyrs to natural history, having, in one of his excursions, fallen from a rock and perished. His *Catalogue* will be found in the second volume of Ray's *Historia Plantarum*, and several of his papers are published in the *Philosophical Transactions.* Plukenet, describing the Azàlea viscòsa, says that a drawing of it, by his own hand, was sent by him to Bishop Compton, his patron.

The name of Evelyn is well known, as belonging to this century. His *Sylva* was published in 1664, from which, and from his *Calendarium Hortense*, it appears that the number of species and varieties of trees and shrubs in the London gardens was then extremely limited. In one of the later editions of the *Sylva*, Evelyn mentions the tulip tree as having been introduced by Tradescant. His description of the tree is curious. He says, " they have a poplar in Virginia of a very peculiar-shaped leaf, as if the point of it were cut off, which grows very well with the curious amongst us to a considerable stature. I conceive it was first brought over by John Tradescant, under the name of the tulip tree (from the likeness of its flowers), but is not, that I find, taken notice of in any of our herbals. I wish we had more of them." (*Sylva*, edit. 1670.) The tulip tree was at that time known through all the English settlements by the title of poplar. (*Hunter's Evelyn*, i. 207.) Hermann says that he observed in the park of the Duke of Norfolk, five or six miles [Dutch miles] from London [? Deepdene], a tulip tree which had been planted there twenty years before, but which had never flowered or borne fruit. (*Hort. Acad. Lugd. Bat. Cat.* 1687, p. 615.) At Say's Court, Deptford, one of Evelyn's residences, he is said to have had a variety of trees; but Gibson, who visited it in 1691, after Evelyn had left it, found only the phillyrea and the holly: of the former, Evelyn had four large round and smoothly clipped plants, on naked stems; and of the latter, a hedge, 400 ft. long, 9 ft. high, and 5 ft. in diameter. Evelyn was very proud of this hedge, and mentions it more than once in his writings. It was ruined by Peter the Great, who, having taken the house at Say's Court, to be near the Deptford dockyards, had himself wheeled through this hedge in a wheelbarrow for amusement! Evelyn planted cedars, pines, silver firs, ilexes, and walnuts at Wooton, some of which we found still remaining there in 1830. Evelyn, however, was more anxious to promote the planting of valuable indigenous trees, than to introduce foreign ones.

Gibson, who made a tour through the gardens about London in 1691, which was published from his MS. many years afterwards in the *Archæologia*, tells us that he found Sir William Temple's garden, at West Sheen, to excel in orange trees and other " greens," as evergreen shrubs were called at that time: Among these " greens," Italian bays, laurustinuses, and striped hollies were included. Sir Henry Capell is said to have had as " curious greens, in his garden at Kew, as any about London." His two lentiscus trees (*P*istàcia *L*entíscus) for which he paid 40*l.* to Versprit, were said to be the best in England. He had four white-striped hollies, about 4 feet above their cases, kept " round and regular," which cost him 5*l.* a tree; and six laurustinuses, with " large, round, equal heads, very flowery and showy." " In the garden of Sir Stephen Fox, at Chiswick (which, though only of five years' standing, is brought to great perfection for the time), are two myrtle hedges about 3 ft. high. They are protected in winter with cases of boards painted." Sir Josiah Child's plantations of walnuts and other trees, at Wanstead, are said by Gibson to be " much more worth seeing than his gardens, which are but indifferent." " Captain Foster's garden at Lambeth," Gibson observes, "has many curiosities in it, and perhaps the finest striped holly hedge in England. He has many myrtles, not the greatest, but cut in the most fanciful shapes that are anywhere to be seen. He has a walk arched over with trelliswork, and covered with vines, which, with others running on most of his walls, without prejudice to his lower trees, yield him a deal of wine."

The commercial gardeners at this time (1691) are thus enumerated by Gibson:—London and Wise had the only extensive nursery; Versprit excelled in hollies and "greens." Ricketts and Pearson were small cultivators for sale. The latter had "abundance of cypresses, which, at 3 ft. high, he sold for 4*d.* apiece; and, being moderate in his prices, and very honest in his dealings, he got much chapmanry." Darby, at Hoxton, is said "to be master of several curious greens that other sale gardens want." Darby is said to have raised many striped hollies by inoculation; and Captain Foster (who appears also to have sold or exchanged his garden productions) to have propagated the same plants by grafting. Darby also kept a book of dried specimens of plants, to show to his customers. Clements, at Mile End, had many curious "greens," and, the year that Gibson visited him (1691), made "white muscadine, and white Frontignac wine," better than any he (Gibson) had elsewhere tasted. It is worthy of remark, that all these "sale gardeners" had greenhouses, and that they piqued themselves principally upon their plants in pots and on their florists' flowers. It is singular that Gibson does not speak of the Bishop of London's garden, though it must have been in its state of greatest perfection at the time he wrote; and also that he barely mentions the nursery of Messrs. London and Wise, which, Evelyn informs us, in the preface to his translation of Quintinye's *Complete Gardener*, published in 1701, "far surpassed all the others in England put together."

The Brompton Park Nursery may, indeed, be considered as the first establishment of the kind which became celebrated. It was founded by Messrs. Cooke, Lucre, London, and Field, in 1681. Lucre, or Lukar, was gardener to the Queen Dowager at Somerset House; Field was gardener to the Earl of Bedford, at Bedford House in the Strand; Moses Cooke was gardener to the Earl of Essex, at Cashiobury, and author of a work entitled *The Manner of raising Forest Trees*, &c., 4to, 1676. George London was gardener to Bishop Compton, and afterwards chief gardener first to William and Mary, and afterwards to Queen Anne. Lukar died in 1686: Cooke and Co. succeeded. Cooke retired in 1689, when Henry Wise, who had been an apprentice to Rose, the royal gardener, as London had also been, became the sole proprietor. In 1693–4, he entered into a new partnership with London. At that time the grounds exceeded 100 acres in extent. This nursery passed, successively, from London and Wise, in 1701, to Swinhoe; in 1714, to Smith and Co.; in 1756, to Jeffries; in 1788, to Jeffries and Gray; at the death of Jeffries, to Gray and Wear; afterwards to Gray, Wear, and Co.; then to Gray, Son, and Brown; and, lastly, to Gray and Son, in whose occupation it still (1835) is. The grounds are now reduced to thirty acres. In the time of London and Wise, it was thus spoken of by Evelyn, in the preface before alluded to: — "The proprietors, Mr. George London, chief gardener to their majesties, and his associate, Mr. Henry Wise, are recommended for their assiduity and industry; they have not made gain the only mark of their pains, but with extraordinary and rare industry endeavoured to improve themselves in the mysteries of their profession; from the great advantages and now long experience they have had, in being employed in most of the celebrated gardens and plantations which this nation abounds in, besides what they have learned abroad, where horticulture is in high reputation." He adds, "the grounds and gardens of noblemen and persons of quality, which they have planted *ab origine*, and which are still under their care and attention, justify what I have said in their behalf." Bowack, who wrote an account of the parish of Kensington in 1705, says, "that some affirm that if the stock of these nurseries were valued at one penny per plant, the amount would exceed 40,000*l*." London and Wise, in 1694, employed twenty men in their nursery and two women. The foreman had 12*s*. a week, the other men had 8*s*., and the women 4*s*.

Botanic gardens began to be established in England about the middle of this century; and they contributed to the introduction of hardy trees and shrubs, as well as of herbaceous plants and exotics. The oldest botanic gardens in England are those of Oxford and of Chelsea. Evelyn visited the latter in 1685, and mentions, as rarities, a tulip tree and a tea shrub. Many private botanic gardens were also founded during this century, Among these were the gardens of Ray, in Essex; of the Duchess of Beaufort, at Badmington, in Gloucestershire; of Sir Hans Sloane, at Chelsea; of Dr. Uvedale, at Enfield, &c. The catalogues of these gardens, in the libraries of the Linnæan Society and of the British Museum, show that they contained various foreign trees and shrubs. Dr. Uvedale's garden, Gibson informs us, "chiefly excelled in exotic greens and orange trees, for which he had six or seven houses or roomsteads." Gibson adds, "that he understood the culture of particular plants, but had no taste for the disposition of his garden." We learn from Miller, that Dr. Uvedale had a fine cedar tree, which, in 1788, was 45 ft. 9 in. high, though 9 ft. had been broken off by the wind. Lysons saw this tree in 1809, and found the girt of it, at 3 ft. 10 in. from the ground (not being able to measure lower, on account of a seat which was fixed round it), to be 13 ft. 1 in. Dr. Uvedale was born in 1642; he became master of the grammar school at Enfield about 1670, and died in 1722. He is said to have devoted so much of his time to his garden, as to be threatened with being removed from his situation by the authorities who had appointed him.

Dr. May, the present master of the grammar school at Enfield, says there is a tradition that one of Dr. Uvedale's scholars, who travelled, had a commission from the doctor to bring a plant of the cedar of Lebanon from Mount Lebanon, and that he brought the tree now standing. Dr. May had it measured in 1821, for the *History of Enfield;* and, the tree being in a state of decay, its dimensions at the present time (January, 1835) are much the same as they were then. The tree lost one of its leading branches in November 1794, previously to which its general form was that of an inverted cone. It was then, and is now, 64 ft. 8 in. high; the girt at one foot from the ground, in 1821, was 19 ft. 9 in.; and the girt is now (1835) 15 ft. 8 in., at 3 ft. from the ground; at 6 ft., 14 ft. There is a portrait of the Enfield cedar in Strutt's *Sylva Britannica*, and the measurements, as taken for us, with the kind permission of Dr. May, will be found in detail in the *Gardener's Magazine*, vol. xi.

The trees and shrubs introduced or cultivated by the curators or proprietors of these different gardens, and others which we have mentioned, will be found in the list which concludes this section, in which the names of Dr. Compton, Gerard, L'Obel, Parkinson, Tradescant, Sutherland, Uvedale, and Sir Hans Sloane, will be found frequently to occur.

In Scotland there appears to have been some taste for botany towards the end of this century, as Patrick Murray had a collection of a thousand plants at Livingstone, and Dr. Balfour founded the botanic garden of Edinburgh in 1680. The curator of the botanic garden at Edinburgh, James Sutherland, was an excellent botanist, and by his correspondents introduced many foreign plants into the garden. It is remarkable that in this garden the cedar of Lebanon was introduced in 1683, the same year in which it is mentioned as having been planted by Bishop Compton at Fulham, and in the Chelsea Botanic Garden.

In Ireland, Sir Arthur Rawdon, struck with the collection of plants in the garden of his countryman, Dr. (afterwards Sir) Hans Sloane, of Chelsea, sent a gardener, who had been a collector for Sir Hans Sloane, to Jamaica, who brought back a shipload of plants to Moira, where various hardy foreign trees were introduced, and kept in good order for several years.

The place is now in the possession of Sir Robert Bateson, but we believe it has been long since dismantled.

The trees and shrubs introduced into England in the 17th century, according to the *Hortus Kewensis,* were as follows: —

1603.	*A*'bies *P*ícea	Germany	Serjt. Newdigate
1616.	*S*álvia grandiflòra	South of Europe	L'Obel
1629.	*C*ístus ladaníferus	Spain	(Parkinson)
	*C*ístus cýprius	Greece	(Parkinson)
	Æ'sculus Hippocástanum	Asia	(Parkinson)
	Ampelópsis *h*ederàcea	North America	(Parkinson)
	Coriària *m*yrtifòlia	South of Eu.	Parkinson
	*R*hámnus *A*latérnus	South of Eu.	(Parkinson)
	*R*hámnus Clùsi*i*	South of Eu.	(Parkinson)
	*R*hús typhìna	North America	Parkinson
	*C*ýtisus sessilifòlius	Italy	Parkinson
	*R*òsa turbinàta	Cont. of Eu.	(Parkinson)
	*R*òsa sempervìrens	South of Eu.	(Parkinson)
	*R*òsa sulphùrea	Levant	J. de Franqueville
	*C*érasus Laurocérasus	Levant	James Cole
	*C*érasus serótina	North America	(Parkinson)
	Cratæ`gus *P*yracántha	South of Eu.	(Parkinson)
	Lonícer*a* cærùlea	Switzerland	(Parkinson)
	*H*elichrýsum *S*tœ`chas	Cont. of Eu.	(Parkinson)
	*D*iospýros virginiàna	North America	(Parkinson)
	*M*òrus rùbra	North America	(Parkinson)
	*J*ùglans nìgra	North America	(Parkinson)
	*C*àrya álba	North America	(Parkinson)
	*L*àrix europæ`a	Germany	(Parkinson)
1633.	*E*læágnus angustifòlia	S. of Europe	Parkinson
	*L*aúrus *Sássafras*	North America	Wilmot
1636.	Coronílla *j*úncea	France	J. Tradescant, jun.
1640.	*C*ístus villòsus	South of Eu.	(Parkinson)
	*H*ypéricum hircìnum	South of Eu.	(Parkinson)
	Staphylèa trifòlia	N. Amer.	J. Tradescant
	*R*hús Toxicodéndron	North America	(Parkinson)
	Gelsèmium sempervìrens	North America	Parkinson
	*A*strágalus *T*ragacántha	South of Eu.	(Parkinson)
	*A*strágalus *P*otèrium	Levant	(Parkinson)
	*C*ýtisus triflòrus	Spain	(Parkinson)
	Robíni*a* Pseùd-*A*càcia	N. Amer.	J. Tradescant
	Spiræ`a *h*ypericifòlia	North America	(Parkinson)
	Cratæ`gus *Azaròlus*	S. of Eu.	J. Tradescant, jun.
	Syrínga pérsica	Persia	J. Tradescant
	Stæhelìn*a* dùbia	Continent of Europe	(Park.)
	*D*orýcnium réctum	South of Eu.	(Parkinson)
	*A*rtemísi*a* arboréscens	Levant	(Parkinson)

1640.	Plantàgo áfra	Sicily	(Parkinson)
	Técoma radìcans	North America	Parkinson
	Zízyphus vulgàris	South of Eu.	(Parkinson)
	Dáphne *Tartonràira*	France	(Parkinson)
	A'triplex Hálimus	Spain	(Parkinson)
	Plátanus occidentàlis	N. Amer.	J. Tradescant, jun.
	Schubért*ia* dísticha	N. Amer.	J. Tradescant, jun.
	Rúscus hypophýllum	Italy	Parkinson
	Cístus álbidus	Spain	(Parkinson)
1648.	Vìtis laciniòsa	Cont. of Eu.	Oxford Gar.
	Cérasus lusitánica	Portugal	Oxford Garden
	Erìca mediterrànea	Portugal	Oxford Garden
	Smìlax áspera	S. of Eu.	Oxford Garden
1656.	Cístus láxus	Spain	John Tradescant
	Cístus críspus	Portugal	John Tradescant
	Cístus populifòlius	Spain	John Tradescant
	Cístus hirsùtus	Portugal	J. Tradescant, jun.
	Cístus corboriénsis	Spain	J. Tradescant, jun.
	Cístus monspeliénsis	Spain	John Tradescant
	A'cer rùbrum	N. Amer.	J. Tradescant, jun.
	Vìtis vulpìna	N. Amer.	J. Tradescant, jun.
	Vìtis Labrúsca	N. Amer.	J. Tradescant, jun.
	Pistàcia Terebínthus	S. of Eu.	J. Tradescant
	Rhús Cótinus	S. of Eu.	J. Tradescant
	Caprifòlium sempervìrens	N. Amer.	J. Tradescant, jun.
	Céltis occidentàlis	N. Amer.	J. Tradescant
	Jùglans cinèrea	N. Amer.	J. Tradescant, jun.
	Rhododéndron hirsùtum	Switzld.	J. Tradescant, jun.
	Jasmìnum hùmile	S. of Eu.	J. Tradescant, jun.
1658.	Polýgala Chamæbúxus	Austria	Oxford Garden
1661.	Phlòmis purpùrea	S. of Eu.	Edward Morgan
	Phlòmis itálica	Italy	Edward Morgan
1663.	Liriodéndron Tulipífera	N. Amer.	Earl of Norfolk
	Pistàcia Lentíscus	S. of Europe	(Evelyn)
1664.	Juníperus virginiàna	North America	Evelyn
	Smìlax *Sarsaparílla*	North America	Evelyn
1665.	Córylus Colúrna	Constantinople	John Rea
1680.	Onònis fruticòsa	South of France	(Morrison)
1683.	A'cer platanöìdes	S. of Eu.	Jas. Sutherland
	Euónymus americànus	N. Amer.	Jas. Sutherland
	Rhámnus infectòrius	S. of Eu.	Jas. Sutherland
	Ròsa alpìna	Switzerland	Jas. Sutherland
	Amýgdalus pùmila	China	(Ray)
	Amýgdalus nàna	Russia	Jas. Sutherland
	Cratæ'gus coccínea	N. Amer.	Bishop Compton
	Pỳrus Chamæméspilus	Pyrenees	James Sutherland
	Córnus serícea	N. Amer.	Bishop Compton

1683.	*R*ìbes reclinàtum	Germany	J. Sutherland
	*B*áccharis *h*alimifòlia	N. Amer.	Bishop Compton
	Santolìna *r*osmarinifòlia	S. of Eu.	Jas. Sutherland
	*D*orýcnium hirsùtum	S. of Eu.	Jas. Sutherland
	*L*ithospérmum fruticòsum	S. of Eu.	Jas. Sutherland
	*L*aúrus *Benzòin*	N. Amer.	Bishop Compton
	*Q*uércus coccífera	France	Jas. Sutherland
	Liquidámbar styracíflua	N. Amer.	Bishop Compton
	*P*ìnus halepénsis	Levant	Bishop Compton
	*C*èdrus Libàni	Levant	Chelsea Garden
	*J*uníperus phœnícea	S. of Eu.	Jas. Sutherland
1688.	Magnòl*ia* glaúca	N. Amer.	Bishop Compton
	Magnòl*ia* longifòlia	N. Amer.	Bishop Compton
	*H*ypéricum *s*erpyllifòlium	Levant	Hon. C. Howard
	*Negúndo f*raxinifòlium	N. Amer.	Bishop Compton
	*R*hús copállina	N. Amer.	Bishop Compton
	Aràlia spinòsa	Virginia	Bishop Compton
1690.	*S*piræ`a *o*pulifòlia	N. Amer.	Bishop Compton
1691.	Menispérmum canadénse	N. Amer.	Bishop Compton
	*C*ratæ`gus Crús-gálli	N. Amer.	Hon. C. Howard
	*Q*uércus coccínea	N. Amer.	Bishop Compton
1692.	*S*àlix babylónica	Levant	Royal Gardens, Hampton Court
	*P*ópulus balsamífera	N. Amer.	Royal Gardens, Hampton Court
	O'strya virgínica	N. Amer.	Bishop Compton
1693.	*J*uníperus lýcia	S. of Eu.	Jacob Bobart
1696.	*R*ùbus occidentàlis	N. Amer.	Chelsea Garden
	*L*ýcium bárbarum	Barbary	Royal Gardens, St. James's
	A'bies balsamífera	N. Amer.	Bishop Compton
1697.	*O*'rnus rotundifòlia	Italy	Duchess of Beaufort
1699.	Passiflòra cærùlea	Brazil	Duchess of Beaufort
	Phýllis *Nòbla*	Canaries	Duch. of Beaufort
	*S*álvia pomífera	Candia	Hon. C. Howard
	*C*astànea pùmila	N. Amer.	Duch. of Beaufort
	*Q*uércus *S*ùber	France	Duchess of Beaufort
	*M*yrìca cerífera	N. Amer.	Duch. of Beaufort
1700.	Ampelópsis bipinnàta	North America	
	Gledítsch*ia* triacánthos	N. Amer.	Bishop Compton
	A'bies álba	N. Amer.	Bishop Compton
	A'bies nìgra	N. Amer.	Bishop Compton
	*P*ýrus *a*rbutifòlia	N. Amer.	Lord Clarendon
	*P*ýrus melanocárpa	N. Amer.	
	*R*ùbus odoràtus	N. Amer.	Sir Hans Sloane

The total number of woody plants introduced during the 17th century appears to be upwards of 130.

From the commencement of the seventeenth century to 1636, during the reign of James I., and part of that of Charles I., twenty-six plants were introduced; all, except four, in the year 1629. The reason why so many appear in this year is, that it is the date of the first edition of Parkinson's *Paradisi in Sole*, &c., in which they were first enumerated. The only introducers mentioned are, Mr. Serjeant Newdigate; John de Franqueville, a merchant in London, from whose care, Parkinson says, "is sprung the greatest store of rare plants that is now flourishing in this kingdom;" Wilmot, and Parkinson. Among the plants introduced during this period are some of considerable interest; the silver fir by Serjeant Newdigate, the gum cistus, the horse-chestnut, the five-leaved ivy, the common laurel, the pyracantha, the red mulberry, the black walnut, and that most important tree, the larch: the introducers of the last eight valuable plants are unknown. Five of the articles are from North America, one from Asia, and the rest from different parts of the continent of Europe. Evelyn states that "at Harefield Park, in the county of Middlesex, belonging to Mr. Serjeant Newdigate, there are two Spanish or silver firs, that being planted there in the year 1603, at two years' growth from the seed, are now (1679) become goodly masts. The biggest of them, from the ground to the upper bough, is 81 ft., though forked on the top; which has not a little impeded its growth. The girt, or circumference, below, is 13 ft.; and the length, so far as it is timber, that is to 6 in. square, is 73 ft.; in the middle it is 17 in. square; amounting by calculation to 146 ft. of good timber. The other tree is indeed not altogether so large, by reason of its standing near the house when it was burned about 40 years since, when one side of the tree was scorched." (*Silva*, edit. 1706.)

In 1640 (still during the reign of Charles I.), twenty-three plants were introduced. The authority is Parkinson's *Herbal, or Theatre of Plants*, published in that year. The introducers were, Parkinson, Tradescant, and Tradescant junior. Among the articles were, the Robín*ia* Pseùd-*A*càcia, the azarole, the Persian lilac, the occidental plane, and the deciduous cypress. Seven are from North America, and the rest from different parts of Europe.

In the year 1656 (in the time of Cromwell), sixteen plants were introduced, the authority for which is the *Catalogue of Tradescant's Museum*, published in that year. Among the articles are, *A*`cer rùbrum, the evergreen honeysuckle, the nettle tree, and the grey walnut.

From 1658 to 1683 (Charles II.), nine plants were introduced, by Edward Morgan, John Rea, Bishop Compton, Evelyn, and the Earl of Norfolk. Among these are, the *P*istàcia *L*entíscus, the red cedar, the Constantinople nut, and the tulip tree. Only three of these are from North America.

In 1683, twenty plants were introduced, by James Sutherland, first curator of the botanic garden of Edinburgh, Bishop Compton, and Parkinson. Among these were, the *A*cer *p*latanöides, the American spindle tree, the kermes oak, the dwarf almond, the scarlet thorn, the *Laúrus Benzòin*, the liquidambar, the Aleppo pine, and the cedar of Lebanon. The principal authority is Sutherland's *Catalogue of the Plants in the Edinburgh Botanic Garden*, published in 1683.

From the year 1688 to the year 1700 inclusive (James II., and William and Mary), thirty-one species were introduced, by Bishop Compton, the Honourable Charles Howard, the Duchess of Beaufort, Jacob Bobart, son of the first superintendent of the Oxford Botanic Garden, and others. The authorities are to be found in Ray's *Historia Plantarum*, in the *Phytographia* of Plukenet, and in Bobart's *Historia Plantarum Oxoniensis*. The titles of all these catalogues, and several others used as authorities for the dates of the introduction, or rather first record, of plants, are given in the preface to the second edition of the *Hortus Kewensis*.

The botanists to whom the British arboretum was most indebted during the seventeenth century were, Parkinson, Tradescant junior, Ray, and Sutherland; and the principal botanical amateurs were, the Bishop of London and the Duchess of Beaufort. Parkinson was born in 1567, and was contemporary with Gerard and L'Obel. He possessed a rich garden, and was appointed apothecary to James I. He appears to have died somewhere about 1650. John Tradescant junior inherited his father's museum, and published a catalogue of it, entitled *Museum Tradescantianum*, in 1656. He died in 1662, bequeathing the museum to Mr. Ashmole, who lodged in his house, and whose name the museum now, " unjustly," as Pulteney remarks, bears in Oxford, where it is deposited. John Ray was born at Black Notley, near Braintree in Essex, in 1628. His father, though a blacksmith, contrived to give him a college education. At college, he imbued the minds of some of his companions with a taste for plants, and he pursued this taste himself at every leisure opportunity. In 1660 he was ordained deacon and priest, and after this time he made various journeys throughout Britain, and visited the Continent. He was the author of numerous works, the principal of which relating to plants are, his *General History of Plants*, his *Methodus Plantarum*, and his *Synopsis Methodica Stirpium Britannicarum*. He died in 1704, at his birthplace, at the age of 76.

Subsect. 4. *Of the Foreign Trees and Shrubs introduced into Britain in the 18th Century.*

A host of amateurs, botanists, and commercial gardeners enriched the British arboretum during this century. In the preceding one, the taste for foreign plants was confined to a few, and these not the richest persons in the community; but generally medical men, clergymen, persons holding small situations under government, or tradesmen. In the 18th century, the taste for planting foreign trees extended itself among the wealthy landed proprietors; partly from the influence of the Princess Dowager of Wales, who established the arboretum at Kew, and partly from the display previously made by Archibald Duke of Argyle at Whitton, the Duke of Richmond at Goodwood, and others. Towards the middle of the century, the change introduced in the taste for laying out grounds, by Pope, Addison, and Kent; and the circumstance that Brown, who had been a practical gardener, was extensively employed in remodelling country residences according to this new taste, must have greatly contributed to increase the number of species employed in plantations; and hence we have the collections at Croome, at Syon, and at Claremont. The writings of Miller, Bradley, Switzer, and Linnæus, and the consequent spread of botanical knowledge among the educated classes about the middle of the century or before, must have enlightened practical men to a degree far exceeding that which had ever previously existed.

In order to give a general view of the state of gardening in England in the first half of the 18th century, as far as it respects foreign trees, we shall begin by giving a summary notice, by Collinson, of the chief encouragers of gardening and planting of his time. Peter Collinson was born in London, in 1693: he was a quaker, and a linendraper. He had a country house and garden, first at Peckham in Surrey, and afterwards at Mill Hill, near Hendon in Middlesex. He appears to have taken possession of the latter place, Ridgeway House, sometime previous to 1749. He was a great lover of animated nature in every form; and in one of his letters, published by Sir James Edward Smith, in the *Linnæan Correspondence*, he declares that every living thing called forth his affections. In a note written in 1768, in one of his copies of Miller's *Dictionary*, which was purchased from one of his lineal descendants in January 1835, by A. B. Lambert, Esq., and which, through the kindness of that gentleman, we have just seen, he declares, at the age of 68, that the plants in his garden at Mill Hill furnish his greatest source of happiness. He died in 1768. In the year 1764, he made notes on some blank leaves in a copy of Miller's *Dictionary*, and again in 1768, in another copy of that work; and the following extract from those made in 1764 is abridged from a communication by A. B. Lambert, Esq., to the *Linnæan Transactions*, vol. x.: — "The gardeners about London in 1712," he says, "were remarkable for fine cut greens, and clipt yews in the shapes of birds, dogs, men, ships, &c. Mr. Parkinson, in Lambeth, was much noticed for these things, and he had besides a few myrtles, oleanders, and evergreens. At that time, Mr. Rench, who lived behind the Earl of Peterborough's at Parson's Green, was famous for tulip trees: he began the collecting of evergreens, arbutuses, phillyreas, &c.; and from him came the gold and silver hedgehog holly. He gave rewards for accidental varieties of the common holly, and thus obtained the saw-leaved variety, and a variegated holly which bears his name. He and Parkinson died about 1724. Brompton Park and Hunt's at Putney were fine nurseries. In 1764, Chelsea Garden excelled all the others in Europe for variety of plants. In 1759, there were, in the American grove at Goodwood, two fine great magnolias [M. grandiflòra], about 20 ft. high, that flowered annually." Collinson adds, that his tree of this species flowered in 1760, which he had raised from seed 20 years before. "Lord Petre, he continues, "who was the ornament and delight of the age he lived in, removed, in the spring of 1734, twenty-four full-grown elms about 60 ft. high, and 2 ft. in diameter: all grew finely, and now (1764) are not known from the old trees they were planted to match." In 1738, he planted an avenue of elms 15 or 20 years old, cedars 20 years old, and larches 11 years old. John Clarke, a butcher at Barnes, was famous for raising cedars from seed, from the great tree at Hendon Place; and also for raising plants of the small magnolia [M. glaúca]. Clarke sold a thousand cedars in 1761, five years old, for 79*l.* 6*s.*, to the Duke of Richmond, which were all planted at Goodwood, and did well. The cedars at Whitton were all raised from seed by the Duke of Argyle in 1725. In 1762, most of the duke's rare trees and shrubs were removed to Kew, then belonging to the Princess of Wales, and under the direction of Lord Bute. Mr. Vernon, a Turkey merchant at Aleppo, brought the weeping willow from the river Euphrates to his seat at Twickenham Park, where Collinson saw it growing in 1748. This was the original of all the weeping willows in our gardens. [In the *Hortùs Kewensis*, the weeping willow is stated to have been cultivated at Hampton Court in 1692.] In 1761, Mr. Sharpe, at South Lodge, in Enfield Chase, invited Mr. Collinson to dine with him, and to see the Córnus flórida in flower. In 1746, Mr. Collinson received the first double Spanish broom from Mr. Brewer of Nuremberg. In 1756, the famous tulip tree in Lord Peterborough's garden at Parson's Green, near Fulham, died. It was about 70 ft. high, and perhaps 100 years old, being the first tree of the kind that was raised in England. "It had, for many years, the visitation of the curious, to see its flowers, and admire its beauty. It was as straight as an arrow, and died of age, by a gentle decay." (*Abridged from Mr. Collinson's paper, as quoted by Mr. Lambert, in the Linnean Transactions*, vol. x. p. 282.)

On a blank leaf of another copy of Miller's *Dictionary*, Collinson adds the following names of proprietors of gardens to the above list: — Reynardson, at Hillingdon, near Uxbridge, whose fine collection, he says, was sold to Mr. Robert Walpole; Mr. Parker, near Croydon; Dr. Lumley Lloyd, at Cheam in Surrey, "who gave his house and great collection of plants to the Duke of Bedford;" Sir Harry Trelawney, of Buttshead, near Plymouth, who had a great collection of hardy trees and shrubs; Sir Harry Goodrick, at Ribstone in Yorkshire, who was a great collector and naturaliser of exotic trees; Mr. Charles Dubois, at Mitcham, remarkable for his collection both of house and of hardy plants; and Mr. Blackburne, at Orford, near Warrington in Lancashire [a catalogue of whose garden was published in 1779], who had a great collection, particularly of stove plants, kept in the highest degree of perfection. Collinson also mentions, in one of the memoranda in this volume, that Tradescant junior was the first who propagated American plants for sale in England.

In Collinson's garden at Mill Hill, the Períploca græ̀ca, and numerous other trees and shrubs, as will be seen by the list at the end of this section, flowered for the first time in England. It was kept up some years after Peter Collinson's death, by his son, Michael Collinson. Afterwards it fell into the hands of Richard Anthony Salisbury, Esq., F.R.S. About the end of the century it was purchased by the protestant dissenters, for a foundation grammar school: the house was turned into lodging-rooms for the boys, and Collinson's stable fitted up as a chapel. A new house has since been built.

On examining the grounds which formerly belonged to Ridgeway House, in January, 1835, several trees and shrubs planted in the time of Collinson were found to be still remaining. A platanus 40 ft. high, and 1½ ft. in diameter at a foot from the ground; a deciduous cypress 48 ft. high, and 1½ ft. in diameter; four pinasters, the diameter of the largest of which was 3 ft.; two of *P*inus *Cémbra* with trunks nearly 2 ft. in diameter, and from 50 to 60 ft. high, which must be the finest specimens of this tree in England; a tulip tree 30 ft. high, diameter 9 in.; and two cedars with clear trunks between 30 and 40 ft. high, and diameters of nearly 4 ft., the branches of which cover a space of 60 ft. in diameter. Near the spot where Collinson's house stood (for it is now pulled down) there is a cedar 60 ft. high, with its lowest branches reclining on the ground, and covering a space of 70 ft. in diameter.

Near it are a very old laburnum, and a sweet chestnut, with a trunk nearly 5 ft. in diameter, and its branches extending 30 ft. on each side. There are a *Quércus I'*lex covering a space of 35 ft. in diameter with its branches; and a weeping willow 50 ft. high; there are a Chinese arbor vitæ 25 ft. high; two red cedars from 30 to 40 ft. high; an upright cypress 40 ft. high, which the present gardener says was planted by Linnæus, but this could not be the case, as Linnæus left England in 1737; a hemlock spruce with two trunks, each 1 ft. in diameter, and 50 ft. high, with branches extending about 30 ft.; two Portugal laurels, each covering a space 40 ft. in diameter; an arbutus 1½ ft. in diameter, with branches extending 20 ft.; a very handsome variegated holly covering a space 18 ft. in diameter; a handsome box tree 15 ft. high; and a cone of laurustinus 20 ft. in diameter at the base; besides several other trees and shrubs evidently as old as the time of Collinson. It is greatly to the credit of the proprietors of the school, that all these fine specimens are carefully preserved, and the name of Collinson respected as it ought to be.

The large cedar referred to, at Hendon, was blown down, at a mature age, on the 1st of January, 1779. Its height was 70 ft., and the diameter of the space covered by its branches 100 ft. The girt of the trunk, at 7 ft. from the ground, was no less than 16 ft.; at 12 ft., it was 20 ft. in circumference; and the limbs varied in girt, from 6 ft. to 12 ft. The gardener, two years before it was blown down, made 50*l.* of the cones. (*Lysons*, vol. ii. p. 395.)

Peterborough House, mentioned by Collinson, is described by Bowack, in his account of Fulham, in 1706, as having 28 acres of ground attached to it, in which was a tulip tree 76 ft. in height, and 5 ft. 9 in. in girt. Swift, in one of his *Letters*, speaks of Lord Peterborough's garden as one of the finest that he had seen about London. The villa is now (1835) the property of T. Sampayo, Esq., and is no way remarkable for its trees and shrubs.

Whitton, a villa and grounds belonging to the Duke of Argyle, near Hounslow, began to be planted when the duke was Earl of Islay, about the year 1720. Collinson informs us that all the cedars at that place were raised from seed in the year 1722. He also mentions that the *Anòna* (*Asímina*) tríloba flowered at Whitton every year; and Weston informs us that the duke's oranges, lemons, limes, and citrons, grown on an open wall, and only sheltered by glass during winter, were the finest in England. (*Tracts, &c.*, p. 201.) Archibald Duke of Argyle was grandson to the Duchess of Lauderdale; he was born at Ham House near Richmond in 1682, and died in London in 1761, aged 79, leaving all his real and personal estate in England to Mrs. Elizabeth Anne Williams. A copy of his will is given in the *Gentleman's Magazine*, vol. xxxi. p. 206., in which the duke gives one year's wages to each of his servants in London, and to Daniel Craft, his gardener at Whitton, and to his housekeeper there, except, says His Grace, " my cook, whose wages are too high." The duke, who succeeded to that title in 1742, collected all the foreign trees and shrubs which, at that time, were to be procured either at home or abroad: many of the former still remain at Whitton, but all those removable were sent to the Princess Dowager of Wales's garden at Kew, in 1762, after the duke's death, his paternal property and dukedom going to a distant relative. The grounds were sold and divided, and now form three distinct villas, which are remarkable for their fine specimens of cedars, Weymouth pines, silver firs, deciduous cypresses, walnuts, hickories, and American oaks.

In February, 1835, through the kindness of the Misses Gostling, the present proprietors of Whitton Place, and the assistance of Mr. Castle, of the Twickenham Botanic Garden, and of Mr. West, gardener at Whitton, a number of the trees were measured for us. Among these are, a Lombardy poplar 115 ft. high, and 19 ft. 8 in. in girt at 2 ft. from the ground; a cedar of Lebanon 71 ft. high and 14 ft. in girt; a silver fir 95 ft. high, and 10 ft. 6 in. in girt; a Weymouth pine 81 ft. high, and 11 ft. 8 in. in girt; a *Quércus Phéllos* (the willow oak) 70 ft. high; and a black hickory 60 ft. high. There are a number of other fine trees, larches, firs, pines, oaks, robinias, gleditschias, &c., on this and other portions of the estate, of which notices will be found in the *Gard. Mag.*, vol. xi.

The seat of the Lord Petre so highly eulogised by Collinson was at Thorndon Hall in Essex; and that place still contains some fine old exotic trees. Speaking of Robert Lord Petre, Collinson, in a letter to Linnæus, dated Jan. 18. 1743, observes that " the death of the worthiest of men, the late Lord Petre, has been the greatest loss that botany or gardening ever felt in this island. He spared no pains or expense to procure seeds and plants from all parts of the world, and then was as ambitious to preserve them." After speaking of his stoves as such " as the world never saw, and may never see again," and giving the dimensions of the more remarkable plants grown in them, he says, " the collections of trees, shrubs, and evergreens in his nurseries at his death, I had told over; and they amounted to 219,925, mostly exotic. As this young nobleman was the greatest man in our taste that this age produced, I thought it might not be unacceptable to give you some account of the greatness of his genius; but his skill in all the liberal arts, particularly in architecture, statuary, planning, and designing, planting, and embellishing his large park and gardens, exceeds my talent to set forth." (*Smith's Linnæan Correspondence*, vol. i.

p. 11.) Robert James, eighth Lord Petre, died in 1742, at the age of 29 years. Linnæus has named a genus of plants Pètre*a*, in commemoration of this nobleman.

Goodwood, near the coast of Sussex, enjoys a mild climate; but the soil, which is thin and on chalk, is not favourable to the growth of trees. The park contains a great number of cedars; but there are not many other foreign trees, except ilices, cork trees, acacias, some acers, and oaks. The magnolias mentioned by Collinson, in his notes of 1764, no longer exist; in Collinson's notes of 1768, he states that all the moveable articles were sold at the duke's death. Miller mentions that a great many trees of the true service were planted at Goodwood; but in 1828, and again in 1831, we sought in vain in the woods for a single specimen.

Samuel Reynardson, Esq., resided at an ancient house, called the Cedar House, from the celebrated cedar which grew in the garden. This cedar was planted by Reynardson, who resided at Hillingdon from 1678, till his death in 1721. This tree was probably one of the first that were planted in England. Lightfoot measured it in 1779; it was then 53 ft. high; the diameter of the space covered by the branches measured from east to west 96 ft., and from north to south 89 ft. The girt, close to the ground, was 13 ft. 6 in.; at 7 ft., 12 ft. 6 in., and at 12 ft., 14 ft. 8 in. It was cut down in 1789, in consequence of one of the branches being broken off by a high wind. It produced 460 ft. of timber, 6¾ loads of stack wood, and 125 faggots. It was sold to a carpenter for 10*l*., and he retailed it for 22*l*. 17*s*. (*Lysons*). Reynardson made a curious will, leaving all his property to the vicar of Hillingdon for ever, to build a room to hold his library and museum. He ordered all his plants to be sold for this purpose. The present vicar of Hillingdon is Dr. Hodgson, the very reverend the Dean of Carlisle, to whom we have written twice, to learn in what state this library and museum now are, but without receiving any answer.

Cashiobury, near Watford in Hertfordshire, the seat of Arthur Capel Earl of Essex (the Earl of Essex who patronised Gerard, and had a seat at Barn Elms, was the celebrated and unfortunate Robert Devereux), was noted for its trees in the time of Evelyn; Cooke, His Lordship's gardener, was the author of a work on forest trees, published in 1676, and afterwards a partner in the Brompton Nursery. Evelyn, in his *Diary*, mentions Cooke as being a skilful artist in the mechanical part of gardening, not ignorant in mathematics, and having some pretensions to astrology. At Cashiobury there is now (1835) one of the finest specimens of Quércus tinctòria in the country. There are also many fine magnolias, *P*inus *Cémbra*, tulip trees, cypresses, cedars, and other species.

The limited variety of evergreens which existed in the London nurseries at the beginning of this century, according to Collinson, is confirmed by the preface to the first edition of Miller's *Dictionary*, published in 1724, in which it is stated that the catalogue of evergreens kept by nurserymen for sale contained only twelve sorts; viz., alaternus, arbutus, bay, box, holly, juniper, laurel, laurustinus, phillyrea, pyracantha, Italian green privet, and yew. In the eighth and last edition which Miller published of his *Dictionary*, dated March 1. 1768, the number of plants then cultivated in England is said to be more than double those that were known in 1731. It appears difficult to reconcile Collinson's and Miller's relation with the ample list of trees and shrubs published in 1730, in the nurserymen's *Catalogue*, which we are about to give some account of: most probably Collinson and Miller referred only to the ordinary gardens and nurseries; or perhaps the defective state of the catalogues of these was one reason why the larger catalogue about to be noticed was produced. From Bradley's *New Improvements of Planting and Gardening*, published in 1720, the former appears to be the case; for, after treating of the common shrubs, he speaks of American trees, which were commonly kept in pots, and housed during the winter; so that what are now considered hardy plants were then looked upon as inmates of the greenhouse, or of the cold frame or covered pit. (*Bradley*, *New Improvements, &c.*, p. 87.)

In the year 1730, the Society of Gardeners, consisting of all the principal nurserymen and florists about London, published *A Catalogue of Trees and Shrubs, both Exotic and Domestic, which are propagated for Sale in the Gardens near London.* This catalogue is in folio, ornamented with an elaborate frontispiece, containing a vista in a garden laid out in the ancient style, exhibiting walls, pillars, and arcades of clipped verdure; and the descriptions of the trees and shrubs refer to engraved plates. As this may be considered a work of unquestionable authority, we shall quote, from the preface, a general view there given of the principal encouragers of planting and gardening in England, previously to and at that time.

The work is dedicated to the Earl of Pembroke and Montgomery, F.R.S.; and, after complimenting His Lordship on his various merits, the Society say, "Your Lordship's good taste in, and great encouragement of, planting and gardening, are fully displayed in those noble gardens at Wilton, where are a greater number of the trees here treated of, and in a more flourishing condition, than can be found in any one garden in this kingdom besides." (p. iv.)

There are now (1834) a considerable number of cedars at Wilton of a large size, and some planes, limes, evergreen oaks, horsechestnuts, red cedars, arbor vitæs, laurels, bays, &c., which probably were planted in or previously to 1730. (See Index, Cedar, &c.)

In the preface (after praising the temperature of the British climate; the Royal Society, Charles II., and William III., and also Malpighius, Grew, Ray, &c., are complimented, as having paved the way for the improvement of gardening. "The profits and innocent delights of this art," they say, "have allured into it many learned and curious persons, nobility and gentry;" and these "have not contented themselves with the narrow compass and mean stock of our former poorly furnished gardens, but they have industriously procured, from abroad, trees, plants, flowers, and fruit, not only from our own plantations in America, but those also of other parts of Europe, nay, even Asia and Africa. Among these generous procurers of plants, &c., we cannot," the Society add, "forbear mentioning the following worthy persons: —

"First, Dr. Compton, late Bishop of London, who was an early introducer of exotic trees and plants, many of which were grown to a considerable size in the open air, in those formerly well-stocked gardens at Fulham, most of which have been since destroyed, to the great regret of many curious persons.

"Much about the same time Samuel Reynardson, Esq., began to furnish his fine gardens at Hillingdon, near Uxbridge, with a great variety of curious plants, which his great correspondence abroad enabled him to procure from divers parts of the world; but, as he kept them for the most part confined to pots and tubs, preserving them in green-houses in winter, never attempting to naturalise them to our climate, so, soon after his death, that valuable collection was dispersed, as at present to be hardly known what he was possessed of.

"In the like manner, also, the curious Dr. Uvedale of Enfield did, by his great correspondence abroad, collect a very valuable parcel of plants and flowers, which he, with great skill and care, maintained for many years; and some of the valuable trees were planted in the full ground, where they are now (1730) remaining; but the bulk of his collection was sold to Sir Robert Walpole, soon after the doctor's death.

"Her Grace the Duchess of Beaufort did also collect a numerous quantity of rare plants into those famous gardens of Badmington, where she preserved and maintained them with great care in wonderful beauty for many years; but this collection also consisted chiefly of the most tender exotic plants.

"The Earl of Pembroke began about the same time to plant those magnificent gardens at Wilton, with all the different varieties of curious exotic trees and shrubs as would endure the cold of our climate in the open air; in which His Lordship hath so well succeeded, as to have the best collection of those trees, which are advanced to a considerable size, that can be found now growing in any one garden in this kingdom: and it was from examples of this kind that people were encouraged to make further trials of what plants, trees, flowers, and fruits could be brought to thrive in our climate without the trouble and expense of housing in winter; and it has been from repeated trials and experiments of this kind, that the many noble trees, fruits, and flowers now in England have by degrees been naturalised to our coarse climate, to the no small pleasure of all the delighters in the innocent divertisements of gardening.

"Nor should we, in mentioning particular persons, forget the many various gentlemen which at present are carrying this spirit of gardening to a considerable height, by introducing many new kinds of plants, flowers, trees, and fruits, and in making many curious experiments concerning their culture and uses; from all whose observations and experiments we may daily expect something new in the business of gardening and vegetation; amongst which persons are, the Earl of Islay, Lord Wilmington, Sir Charles Wager; Sir Harry Goodrick, Bart., in Yorkshire; the Reverend and Honourable Lumley Lloyd, Esq., at Cheam, in Surrey; Henry Trelawney, Esq., at Buttshead, near Plymouth; Henry Marsh, Esq., at Hammersmith; George Dennis, Esq., in Cornwall; Dr. Beeston, of Ipswich; Mr. James Sherard, of Eltham, in Kent; —— Topham, of Windsor; Mr. Peter Collinson, with several others, too many to be here enumerated.

"But to none of the before-mentioned persons is England more indebted for introducing trees, plants, flowers, and fruits, than to the learned and ingenious Charles Dubois, Esq., of Mitcham, who has not only been very industrious to procure plants from abroad, but also as generous in communicating whatever his garden would afford, as also many useful observations relating both to their culture and uses, to all delighters in planting and gardening; and it is to him that we are greatly indebted for many valuable trees and plants which enrich this catalogue.

"And after mentioning the particular persons to whom England is thus indebted for introducing so many valuable trees, plants, flowers, and fruits, we cannot in justice omit to mention the establishing of the public botanic garden at Chelsea, by the worshipful company of Apothecaries of London, not only for medical instruction, but also for introducing still a greater variety of trees and plants." Afterwards, when speaking of botanic gardens, it is observed by the Society, that there is only one in England which deserves the name, and that is, "that of Chelsea, maintained at the expense of the worshipful company of Apothecaries." (p. viii.) The reader is next taught what he is to expect; viz., "an exact catalogue of the several sorts of trees and shrubs, which will endure to be planted in the open air in England, which are to be found in the several nurseries near London," arranged in alphabetical order, and with short descriptions. The preface is signed by the twenty "gardeners and nurserymen" composing the Society, among which are Fairchild of Hoxton, Furber of Kensington, Miller of the Physic Garden, Chelsea, Gray of Fulham, and F. and S. Hunt of Putney.

Some of the patrons of gardening in the above enumeration have been already mentioned, and of the others we know but little. Spencer Compton, speaker of the House of Commons in 1714, and afterwards Earl of Wilmington, was a near relative of Bishop Compton. He died in 1743. Lewis Kennedy, one of the founders of the Hammersmith Nursery, was gardener to him in 1739. Sir Charles Wager had a residence at Parson's Green, where he introduced the scarlet maple (which was then called Wager's maple) in 1725. A Magnòl*ia* grandiflòra flowered in his garden in 1737. He died in 1743. Collinson says that a tulip tree, which had been raised from a seed which he gave Sir Charles Wager, flowered for the first time when it was thirty years old, in 1756; and Lysons mentions a cedar of remarkable growth, which grew near the house, in Sir Charles's garden. (*Environs, &c.*, ii. 829.) The grounds at Mitcham, which belonged to Mr. Dubois, are now (Jan. 1835) the property of Mr. Blake, an auctioneer at Croydon. Dubois's house has been long since pulled down; but another has been built, which is occupied by Mrs. Beckford. In the grounds a number of the trees planted by Mr. Dubois still remain. Among these are a very large weeping willow; a nettle tree, with branches covering a space 50 ft. in diameter, and with a trunk 6 ft. 8 in. in circumference. The extremities of the branches hang down nearly to the ground; and on Jan. 10. 1835, when we had the tree examined, the spray was still covered with dark purple berries, rather larger than those of the common hawthorn. There is a pinaster, with a clear trunk about 40 ft. high; the girt, about 3 ft. from the ground, 9 ft.; and the total height 60 ft. The cracks in the bark of this tree are from 6 in. to 8 in. deep. There is a very old, large, and handsome mulberry tree, the branches of which cover a space of 60 ft. in diameter; it bears abundantly every year. Besides these, there are very large and old Scotch pines; a large old stone pine; large *P*rùnus *Mahàleb;* a fine *P*tèlea trifoliàta; a stag's horn sumach, with a trunk 6 ft. in girt; an old Bignòn*ia* radìcans; a large arbutus, and some other fine specimens. Dubois died in 1740, aged 83 years.

The following is an abridged list of the above-mentioned catalogue of the Society of Gardeners, with the modern names, as given in our *Hortus Britannicus*, as far as we have been able to ascertain them: —

1. R*anunculàceæ.* *C*lématis Vitálba, V. simple-leaved, ? cirrhòsa, ? flórida; Viticélla, blue; V., blue, double; V., purple; Viórna.

2. *Magnol*iàceæ. Liriodéndron Tulipífera, also "the laurel leav'd tulip tree."

3. Berberídeæ. *Bérberis* vulgàris, v. white-fruited, v. seedless-fruited, canadénsis.

4. C*istíneæ.* *C*ístus ladaníferus albiflòrus, l. maculàtus, ? latifòlius, ? cýprius, ? incànus, sp.

5. M*alvàceæ.* Lavàter*a* O'lbia, tríloba, " Althæa, frutescens Bryoniæ folio. C.B.P. 316." *H*ibíscus syrìacus, red-flowered, s., purple-flowered; s., white-flowered; s., striped-flowered; s., striped-leaved.

6. T*iliàceæ.* *T*ília europæ`a; e., variegated-leaved; platyphýlla, parvifòlia, pubéscens.

7. H*ypericíneæ.* *H*ypéricum hircìnum, ? canariénse.

8. A*ceríneæ.* *A*cer Pseùdo-*P*látanus; Pseùdo-*P*l. variegated-leaved; campéstre, *p*latanöìdes; *p*l. variegated-leaved; rùbrum ("the Virginian flowering maple," &c.); and another sort of "the Virginian flowering maple." *Negúndo f*raxinifòlium.

9. *Hippocastàneæ.* *Æ*'sculus Hippocástanum; H., with leaves variegated with yellow; H., with leaves variegated with white; Pàv*ia* rùbra.

10. V*ìtes.* *V*ìtis vulpìna, ? *L*abrúsca ("the wild Virginian grape"); and these varieties of vinífera, "the parsley-leav'd vine," "the blotch'd-leav'd vine," and "the strip'd-leav'd vine." Ampelópsis bipinnàta and *h*ederàcea.

11. *Zygophýlleæ.* Meliánthus màjor and mìnor.

12. *Xanthoxýleæ.* *P*tèlea trifoliàta, *C*neòrum tricóccum.

13. R*utàceæ.* *R*ùta gravèolens, ? angustifòlia; ? an., var. "the [silver] strip'd narrow-leav'd;" chalepénsis.

14. I*licíneæ.* *I*'lex *A*quifòlium, 33 varieties of, whose characteristics are given; vomitòria, "South Sea thea tree;" sp. ("Aquifolium; Carolinianum, angustifolium, spinis raris brevissimis." Carolina holly, with smooth leaves.

15. *Staphyleàceæ.* Staphylèa pinnàta and trifòlia.

16. C*elastríneæ.* *E*uónymus europæ`us and latifòlius.

17. R*hámneæ.* *R*hámnus *A*latérnus; *A.*, blotched-leaved; Clùsi*i;* C., gold-edged-leaved; C., silver-edged-leaved; Frángula, cathárticus, ? infectòrius, sp. ("Rhamnus; spinis oblongis, cortice albo, Monspeliensium. J. B., vol. i. pars 2. 31.") *Pa*liùrus aculeàtus.

18. *Anacardiàceæ.* *R*hús *C*ótinus, typhìna, Toxicodéndron, radìcans, ? vérnix, *C*oriària *m*yrtifòlia, *P*istàcia *T*erebínthus and officinàrum.

19. *Leguminòsæ.* Gledítsch*ia* triacánthos, Robín*ia* viscòsa, sp. ("Acacia, Caroliniana, aquatica, Abruæ folio, spinis rarioribus.

Water acacia.") Pseùd-*A*càcia with rough pods, Pseùd-*A*càcia with smooth pods. Amórpha, ? fruticòsa; *C*olùtea arboréscens, Sutherlánd*ia* frutéscens; *C*ýtisus *s*copàrius, sp. (? sessilifòlius ? nígricans), alpìnus, ? alpìnus var., *L*abúrnum, álbus; *D*orýcnium suffruticòsum, Coronílla E´merus, E´merus ? " minor," *U*lex europæ`a and nàna, *G*enísta ánglica, Medicàgo arbòrea, Wistàr*ia* frutéscens; *C*ércis *S*iliquástrum, canadénsis, sp. (" Carolina pointed-leav'd Judas tree:" this is given as distinct from the previous two); *S*pártium *j*únceum.

20. A*mygdàleæ*. *A*mýgdalus commùnis; c., bitter-kerneled; c., tender-shelled; c., white-flowered; *A*rmeniaca vulgàris, and a striped-leaved variety of it; *C*érasus *P*àdus, *P.* the Cornish variety; the Flanders cluster cherry, the double-flowered cherry tree, the double-flowered cherry with very large flowers, the black cherry or mazzard, the common wild or honey cherry, the wild northern English cherry, the garden cherry with the leaf elegantly striped; *Mahàleb*, Laurocérasus, L. with the leaf variegated with yellow, L. with the leaf variegated with white; *P*érsica vulgàris, double-flowered; *A*mýgdalus nàna and pùmila; *P*rùnus spinòsa, insitítia; i., white-fruited; and the following varieties of, we assume, doméstica: " the damson," " the great violet damson," " the strip'd [leaf] perdrigon plumb," " the strip'd [leaf] muscle plumb," " the cherry plumb," " Christmas plumb or winter creke," and a kind " flore pleno."

21. R*osàceæ*. *R*òsa canìna, villòsa, sp. allied to villòsa, spinosíssima and two varieties of it, rubiginòsa and var. flòre plèno, sp. or var. (" Rosa, rubra, multiplex. C. B. P."), *c*innamòmea, *c*. fl. pl.; lùtea, lùtea punícea, sulphùrea, turbinàta, sempervìrens, moschàta; m., double-flowered, " rose without thorns," " the Virginian briar," álba and varieties of it; and these ornamental varieties of other species, the single damask, the double damask, the York and Lancaster, the red Belgick, the blush Belgick; the single Provence, the damask Provence, the red Provence, the common Provence, the moss Provence, the Dutch hundred-leaved; the single velvet, the double velvet, the rosa mundi, the marbled, the royal virgin, " the monthly rose," " the strip'd monthly;" Potentílla fruticòsa; *S*piræ`a *s*alicifòlia, *o*pulifòlia, *h*ypericifòlia; *R*ùbus fruticòsus; fr., white-fruited; fr., variegated-leaved; cæ`sius, idæ`us; i., white-fruited; i., the late red; odoràtus, " the upright Pennsylvania bramble, or raspberry," " the Virginian black raspberry."

22. P*omàceæ*. *P*ỳrus *A*´ria, " the white beam tree with long leaves and small red fruit," " the red chess apple, or English wild service;" *S*órbus (" the pear-shaped true service"); *S*., " the round late-ripe service;" aucupària, a. " foliis ex luteo variegatis," torminàlis, *M*àlus, " the strip'd [leaf] crab tree," " the strip'd [leaf] apple tree," " the paradise apple," " the figg apple,"

“ the Virginian crab tree with sweet flowers,” commùnis “ with strip'd leaves,” “ the double-blossom pear,” “ the twice-flowering pear;” *C*ydònia vulgàris, the pear quince, apple quince, and Portugal quince; *M*éspilus germánica; g., the great Dutch; *C*ratæ̀gus *O*xyacántha; *O.* fl. pl.; *O.*, Glastonbury; *O.*, white-fruited; *Azaròlus*, “ the Virginian azarol with red fruit;” *P*yracántha, “ the Virginian cockspur,” “ the Virginian hawthorn with long sharp thorns,” “ the yellow-berried Carolina hawthorn;” *Amelánchier* vulgàris, Photínia *a*rbutifòlia, ? Cotoneáster vulgàris.

23. G*ranàteæ.* *P*ùnica *G*ranàtum, *G.* flòre plèno.

24. T*amariscíneæ.* *T*ámarix gállica and germánica.

25. P*hiladélpheæ.* *P*hiladélphus coronàrius; c., double-flowered; c., variegated-leaved; c. nànus (“ nunquam florens,” which never flowers).

26. *Passiflòreæ.* Passiflòra cærùlea; c., with yellow blotch'd leaves; “ the narrow-leav'd passion flower, with lesser and paler colour'd flowers;” “ the yellow passion flower,” “ the three-leav'd passion flower.”

27. *Crassulàceæ.* *S*èdum *p*opulifòlium.

28. *Grossulàceæ.* *Ribes* Grossulària; eight kinds of gooseberry, among which are “ the yellow-leav'd” and “ the strip'd-leav'd;” and included in the species rùbrum these varieties, common red currant, champagne, large red, white, large white, “ the strip'd-leav'd white,” “ the yellow-strip'd-leav'd currant, tree,” “ the silver-strip'd currant tree;” alpìnum; a., with leaf variegated with yellow; nìgrum; n., variegated-leaved; “ Ribes, Americana, fructu nigro;” “ small wild currant.”

29. *Araliàceæ.* Aràlia spinòsa.

30. C*aprifoliàceæ.* Kinds of honeysuckle named as follows:—the Italian, yellow Italian, early or French white, late red, Dutch, English long-blowing, oak-leaved, English white, Russian, evergreen, common with striped leaves, striped honeysuckle with hairy indented leaves. Lonícer*a* Xylósteum, alpígena, and cærùlea; Symphòria glomeràta. *V*ibúrnum Lantàna; L., variegated-leaved; lævigàtum, *O*'pulus, *O.* ròsea, *O.* folio variegato, *T*ìnus; *T.*, hírta; *T.*, “ foliis ex luteo variegatis;” *T.*, “ small-leav'd;” lùcidum, l. “ foliis ex albo variegatis.” *H*édera *H*èlix; *H.*, “ yellow-leav'd;” *H.*, “ silver-strip'd;” *H.*, “ the yellow-strip'd.” *S*ambùcus nìgra; n., greenish-berried; n., white-berried; n., leaf variegated with yellow; n., “ parsley-leav'd;” racemòsa.

31. C*órneæ.* *C*órnus más sanguínea; s., striped-leaved; “ the Virginian.”

32. *Compósitæ.* *B*áccharis *h*alimifòlia.

33. V*accinièæ.* *V*accínium uliginòsum and Myrtíllus.

34. E*ricàceæ.* *A*'rbutus *U*̀nedo; *U.*, double-flowered; “ the strawberry tree with oblong flowers and egg-shaped fruit.”

35. *Styracineæ*. Halès*ia* tetráptera.

36. E*benàceæ*. *D*iospỳros virginiàna and *L*òtus. Perhaps the " Celtis fructu luteo ampliori " is a variety of *D.* virginiàna.

37. O*leàceæ*. *F*ráxinus excélsior; e., leaf striped with yellow; ? caroliniàna, sp. (" the New England ash "); *O*'rnus europæ`a and rotundifòlia. *L*igústrum vulgàre; v., leaf yellow-variegated; v., leaf silver-variegated. *Syrínga* vulgàris, these varieties of it, blue-flowered, purple-flowered, white-flowered, yellow blotched-leaved, white blotched-leaved; pérsica; p., cut-leaved. *O*`lea europæ`a, e. *b*uxifòlia. *P*hillýrea latifòlia; l., leaf yellow-variegated; *l*igustrifòlia, angustifòlia; a., *r*osmarinifòlia; *o*leæfòlia.

38. J*asmíneæ*. *J*asmìnum officinàle; o., leaf yellow-variegated; o., leaf white-variegated; frùticans, hùmile.

39. *Bignoni*àceæ. *Técoma* radìcans, r. mìnor; Bignòn*ia* capreolàta, *Catálpa syringæ*fòlia.

40. S*olàneæ*. *S*olànum Dulcamàra; D., white-flowered; D., leaf white-variegated.

41. *Labiàtæ*. *P*hlòmis fruticòsa, ? lanàta; *R*osmarìnus officinàlis; o., silver-striped-leaved; o., yellow-striped-leaved; o., latifòlius; sp. (" Rosmarinus; Almeriensis, flore majore, spicato, purpurascente. Tourn. 195. The large flowering rosemary.") *S*àlvia officinàlis; o., leaf variegated with green and white; o., leaf red; o., leaf particoloured; sp. (" Salvia; absinthium redolens. J. B. iii. 307. Wormwood sage"), sp. (" Salvia; minor, aurita et non aurita"), and a variety of the preceding (" Salvia; minor, foliis variegatis"). *T*eùcr*ium* ? frùticans, sp. ("Teucrium; Bœticum, calice campanulato. Boerh. Ind. Alt. 181. Spanish tree germander.") " Galeopsis; hispanica, frutescens, Teucrii folio. *Tourn.* The base-horehound tree."

42. V*erbenàceæ*. *V*ìtex *A*'gnus cástus, *A.* latifòlius.

43. *Chenopòdeæ*. *A*'triplex *H*álimus.

44. L*auríneæ*. *L*aúrus *Benzòin*, *Sássafras*, nóbilis mas, and nóbilis fœm.

45. T*hymelæ`æ*. *D*áphne Laurèola; L., yellow-variegated; *Mezèreum*, red-flowered; *M.*, purple-flowered; *M.*, white-flowered; *M.*, white-variegated-leaved.

46. E*læágneæ*. *E*læágnus angustifòlia; *H*ippóphaë *r*hamnöìdes mas, *r.* fœm.

47. E*uphorbi*àceæ. *B*úxus sempervìrens, eight varieties of.

48. *Artocárpeæ*. *F*ìcus Cárica, nine varieties of; a tenth kind of *F*ìcus. *M*òrus nìgra, álba; a., " the small purplish-white" fruited; "the large-leav'd Virginian mulberry with black shoots," " the Virginian mulberry with long red fruit."

49. U*lmàceæ*. The common elm; the witch hazel, or broad-leaved elm; the small-leaved elm; the smooth-leaved, or witch elm; the Dutch elm; the small-leaved striped elm; the striped witch elm; the yellow-leaved elm; the striped Dutch elm.

" There are some other varieties of these trees in the nurseries near London, which, not having been examined, we shall omit at present." Céltis occidentàlis.

50. *Juglándeæ.* Jùglans règia, four varieties of; nìgra. Càrya, sp. (" Virginian walnut with long furrow'd fruit"), sp. (" the hickery, or white Virginian walnut"), sp. (" the small white Virginian walnut, or hickery ").

51. *Salicíneæ.* Sàlix álba, pentándra, sp. (" the long-leav'd sweet [scented leaf] willow "), babylónica, frágilis, ? amygdálina or ? triándra, vitellìna, ? càprea ; ? c., round-leaved ; c., round-leaved-variegated. Pópulus canéscens, álba ; a., variegated-leaved ; trémula, nìgra.

52. *Betulíneæ.* Bétula álba, A'lnus glutinòsa and ? oblongàta.

53. *Cupulíferæ.* Qúercus I'lex, four varieties of; coccífera, Ròbur ; *R.*, leaf white-variegated ; álba, " evergreen oak with broad leaves like the common oak," " the scarlet oak," " the Virginian chestnut-leav'd oak," " the Virginian willow-leav'd oak," " the chinquapin oak," " the Spanish cut-leav'd oak ;" Sùber, " the broad-leav'd cork tree ;" *S.*, " the narrow-leav'd cork tree." Cárpinus Bétulus ; *B.*, striped-leaved ; O'strya vulgàris and virgínica ; Castànea vésca ; v., leaf elegantly variegated ; pùmila ; Fàgus sylvática ; s., yellow-variegated-leaved ; Córylus Avellàna, and five varieties of it.

54. *Platàneæ.* Plátanus orientàlis, occidentàlis, ? acerifòlia ; Liquidámbar styracíflua.

55. *Myríceæ.* Myrìca *Gàle*, cerífera, carolinénsis.

56. *Coníferæ.* Cèdrus Libàni, Làrix europæ̀a : e., with the rudiments of the cone white ; Pìnus sylvéstris, Pináster, sp. (" Pinus ; Americana, foliis prælongis, subinde ternis, conis plurimis confertim nascentibus "), Pínea, Stròbus, palústris ; A'bies excélsa, Pícea, sp. or var. (" Abies ; minor, pectinatis foliis, Virginiana, conis parvis subrotundis. Pluk. Alm. 2. Phyt. tab. 121. f. 1."); sp. or var. (" Abies ; Piceæ foliis, brevibus ; conis minimis. *Rand.*"); nìgra ; balsamífera, sp. or var. (" Abies ; taxi folio ; fructu longissimo, deorsum inflexo. Long-con'd Cornish firr ") ; Schubértia dísticha, Cupréssus sempervìrens ; ? s., horizontàlis ; Thùja occidentàlis, occidentàlis with its leaves elegantly variegated ; Táxus baccàta ; b., leaf variegated ; b., " the broad shining-leav'd yew ;" Juníperus commùnis, suécica, virginiàna, ? virginiàna hùmilis ; bermudiàna, Sabìna ; *S.*, variegated-leaved ; ? *S.*, " the berry-bearing or upright savin."

The introducers of foreign trees and shrubs in the early part of the eighteenth century are much indebted to Mark Catesby, an enthusiastic naturalist, who travelled in North America from 1712 to 1726, when he returned to England, made himself master of the art of etching, and published his splendid work, containing the natural history of Carolina, Florida, and the

Bahama Islands. All the most interesting trees of America are beautifully figured in these volumes; and the appearance of such figures for the first time, in England, must have greatly contributed to induce the wealthy to procure the introduction of the trees they represented into this country. Ryall, who wrote the preface to Catesby's *Hortus Americanus Europæus* (which was not published till 1767, nearly twenty years after Catesby's death), observes, " that very little regard was had to the trees and shrubs of America on our first settling in that country; nor, indeed, was any considerable step taken about introducing them into England till about the year 1720," chiefly in consequence of Mr. Catesby's exertions, Catesby lived many years at Hoxton; but in the latter part of his life he removed to Fulham, where he occupied a house, and had a garden within the site of what is now the Fulham Nursery, in which some trees remain that were planted with his own hand. (*Lysons*, vol. ii. p. 829.) Catesby was born in 1679, and died in 1749. In a notice of his death, in the *Gentleman's Magazine* for 1749 (xx. 30.), he is called the " truly honest, ingenious, and modest Mr. Mark Catesby."

On a blank leaf of Collinson's copy of Catesby's *Natural History of Carolina* (which, in January, 1835, came into the possession of A. B. Lambert, Esq.), is the following curious memorandum in Mr. Collinson's own handwriting, and signed with his name, " The ingenious author, Mr. Mark Catesby, was born of a gentleman's family at Sudbury in Suffolk. Some of his family being settled in Virginia, and having himself a turn of mind to natural history, he went over there to see his sister and improve his genius. From thence he travelled to Carolina, Bahama Islands, &c., and painted all the subjects from the life. On his return, the subscription being at an end, he was at a great loss how to introduce this valuable work to the world, until he met with a friend (Peter Collinson) to assist and promote his views. He learned to engrave, and coloured all himself, yet it proved so very expensive, that he was many years in accomplishing the work, being himself the principal operator. So noble and so accurate a performance, begun and finished by one hand, is not to be paralleled: but it afforded a subsistence to himself, his wife, and two children, to his death; and his widow subsisted on the sale of it for about two years afterwards, then the work, plates, &c., sold for 400*l*., and about 200*l*. more left by the widow, was divided between the two children, a son and a daughter." At the bottom of the titlepage is written: — " This edition of this noble work is very valuable, as it was highly finished by the ingenious author, who in gratitude made me this present for the considerable sum of money I lent him without interest, to enable him to publish it for the benefit of himself and family; else of necessity it must have fallen a prey to the booksellers." Date 1731.

Mr. John Ellis was remarkable for his exertions in devising plans for importing acorns and other nuts and seeds of American trees, which through his means were thus brought over in large quantities. He was a contemporary of Collinson, and, like him, was early in life engaged in merchandise; but he afterwards became agent for West Florida in 1764, and for Dominica in 1770. He had a very extensive correspondence, and was the means of introducing many articles of natural history, besides trees and shrubs. He was the author of *The Natural History of Corallines*, *The Natural History of Zoophytes*, &c., and established the genera Halès*ia*, Gordòn*ia*, Gardèn*ia*, and others. As a proof of the amiable feeling that subsisted at that time between English and French naturalists, may be mentioned, that, during the war, Duhamel, who was then (1757) at the head of the French marine establishment, promised to Ellis and Collinson to return whatever plants were taken by the French. John Ellis died in 1776, aged 66.

Alexander Garden, M.D., was a Scotch physician, settled at Charlestown, in South Carolina, where he married in 1755, and died in 1791, in his 52d year. He sent home a number of American trees and shrubs, including the *P*tèlea, the fringe tree, several species of Magnòl*ia*, Zàmia integrifòlia, &c. Linnæus intended the loblolly bay, called Lasiánthus (now Gordòn*ia* Lasiánthus), to be named after him, which honour Dr. Garden solicited; but, unfortunately, his letter arrived too late by a month, Mr. Ellis having, in the meantime, named it Gordòn*ia*. Another genus, the Gardèn*ia*, commemorates the name of this ardent naturalist.

Subsequently to the year 1730, foreign trees and shrubs appear to have been planted in various country seats, and more especially in those laid out in the modern style. Among the earliest of these are included Stowe, and part of the scenery at Blenheim. At the former are some fine old cypresses, cedars, and acacias, planted in Brown's time; and in the latter were, till lately, the oldest deciduous cypresses and Lombardy poplars in England. We believe the very first place in which the Dutch style was made to give way to the English manner was Corby Castle, in Cumberland, which began to display the new taste so early as 1706 (*Warner*); but it does not appear that many foreign trees were planted.

Pains Hill was planted by the Honourable Charles Hamilton, sixth son of the Earl of Abercorn, about the same time that Woburn Farm was laid out, viz. 1735. Mr. Hamilton not only indulged the public with a sight of his improvements at Pains Hill; but allowed strangers the use of low chairs, drawn by small horses, which were provided at the inns at Cobham, to go over the grounds. In the latter part of his life, Mr. Hamilton retired to Bath, having sold his place to Benjamin Bond Hopkins, Esq., who built the present house, the original one being small. (*Manning and Bray's Surrey*, ii. 768.) Among the trees remaining at Pains Hill are some remarkably fine silver cedars, pinasters, and other pines, American oaks, cork trees, and ilices, a tupelo tree (Nýss*a*), tulip trees, acacias, deciduous cypress, Lombardy and other poplars, &c. Here some of the first rhododendrons and azaleas introduced into England were planted by Mr. Thoburn, who was gardener to Mr. Hamilton, and who afterwards became an eminent nurseryman at Old Brompton. Bowood was laid out about the same time by the first Marquess of Lansdowne (then Earl of Shelburne), who was assisted by Mr. Hamilton of Pains Hill; and, like that place, it was planted with every kind of foreign tree that could be procured at the time. Many of these trees still remain, and have attained a large size: the cedars and tulip trees are remarkably fine. Woburn Farm, which began to be improved by Mr. Southcote in 1735, belongs to this class of places; and also Strathfieldsaye: the former contains one of the largest liquidambar trees in England, a remarkably fine hemlock spruce, very large tulip trees, acacias, hickories, pines, cedars, and cypresses, and a magnificent cut-leaved alder. At Strathfieldsaye are the largest hemlock spruce in England, some remarkably fine scarlet oaks, a large tupelo tree, and many fine pines and firs. Claremont, planted about the same time by Brown, for Lord Clive, contains a great many exotic trees, particularly cedars of large dimensions. There are very large ilices, cork trees, tulip trees, red cedars, a large hemlock spruce, and many other fine specimens of foreign trees. Oatlands, Ashley Park, and more particularly Lord Tankerville's at Walton, were planted soon after this period, and contain many fine specimens.

Upton House, near Stratford in Essex, was planted by Dr. Fothergill about 1762; and, though many of the shrubs were sold at the doctor's death in 1781, the grounds still contain many large and fine specimens. Of these we had the following measured in January, 1835: *P*ópulus canadénsis, 100 ft. high; *P*. dilatàta, 120 ft. high; *Q*uércus Túrner*i*, 50 ft. high; *C*órylus *C*olúrna, with a trunk 5 ft. in circumference, and forming a very handsome tree which bears abundantly every year; *C*upréssus sempervìrens horizontàlis, 40 ft. high, a fine specimen; two very large cedars, with trunks 9½ ft. in diameter, at 6 ft. from the ground; a large cork tree; Kölreutèr*ia* paniculàta, 40 ft. high, perhaps the largest in England; a large robinia, &c. Collinson states that the *A*'rbutus *A*ndráchne flowered for the first time in this garden, in May, 1766. He adds that the plant was raised from seeds sent to Dr. Fothergill, by Dr. Russell of Aleppo, in 1756; and that the original plant was sold by auction in August, 1781, after the doctor's death, for 53*l.* 11*s.* There appears to be some mistake in this relation, as Dr. Fothergill did not purchase Upton till 1762, and the *A'*rbutus *A*ndráchne was cultivated in 1724. Dr. Fothergill, however, may have raised his plant somewhere else, and removed it to Upton; and, though it was introduced in 1724, it may not have flowered before the period mentioned. Collinson was such a careful observer, that this remark appears due to his memory. Upton House is now in the possession of S. Gurney, Esq.

Purser's Cross was planted by John Ord, Esq., in 1756; and "it is not a little extraordinary," says Lysons, "that this garden should, within the space of little more than fifty years (such have been the effects of good management and a fertile soil), have produced trees which are now the finest of their respective kinds in the kingdom." The following is an account of some of the most remarkable trees at Purser's Cross, as measured by Lysons at three different periods, and for us in Jan. 1835: —

	Girth in							
	1793.		1808.		1809.		1835.	
	ft.	in.	ft.	in.	ft.	in.	ft.	in.
The *Sophòra* japónica, planted in 1756, being then about 2 ft. in height; it flowered for the first time in August, 1807, and has continued to flower almost every year since	8	0	9	4	9	7½	13	0
The gingko tree (Salisbùr*ia*), planted in 1767 (about 37 ft. high in 1809; and in 1835 between 50 ft. and 60 ft.) - -	2	3	3	6	3	9	5	2
A tree, the seed of which was given to Mr. Ord, by the late Mr. Aiton, as an Illinois nut, and which was sown in 1760 (about 40 feet high) - - -	2	2	2	10	2	11	4	5
A black walnut tree (*J*ùglans nìgra) sown where it now stands, in 1757 (about 64 ft. high) - - -	5	4	6	11	7	3	9	0
A cedar of Lebanon, planted in 1756, then two years old (in 1809 about 55 ft. high)	8	8	9	11	9	9	11	10
A willow-leaved oak (sown in 1757) -	4	0	5	5	5	7	7	0
The *R*hús vérnix, or varnish sumach -	4	0	4	10	4	10	—	

Purser's Cross contains a greater number of fine specimens, in a very limited space, than any garden we know of in the neighbourhood of London. In October, 1834, we found there Magnòl*ia* tripétala, acuminàta, and other species, of considerable size, Liriodéndron Tulipífera; *Negúndo f*raxinifòlium, 40 ft. high; *Asímina* tríloba, 10 ft. high, flowering every year; another plant, which died a few years ago, having ripened fruit every year; *Ailántus* glandulòsa, 30 ft. high; Gymnócladus canadénsis, 30 ft. high; *Sophòra* japónica, 40 ft. high, which flowers every year; Robín*ia* and Gledítsch*ia*, very fine specimens; Cratæ`gus, several species, very large; *P*ỳrus *S*órbus, very fine specimens; *C*éltis, *J*ùglans, and *P*ópulus, very large trees; *Q*uércus of various species, from 40 ft. to 60 ft. high; *Q*uércus coccífera and gramúntia, each 30 ft. high, and considered among the finest specimens in the neighbourhood of London; and Salisbùr*ia* *a*diantifòlia, nearly 60 ft. high; Andrómed*a* arbòrea, 18 ft. high; and deciduous cypresses, from 70 ft. to 80 ft. high. Purser's Cross is now the property of Lord Ravensworth.

Syon was one of the largest monasteries that were suppressed. It was in Henry VIII.'s hands at his death; and his funeral procession, which is said to have exceeded in magnificence anything of the kind either before or since, was rested a night at Syon on its way to Windsor. King Edward VI. granted Syon to Edward Duke of Somerset, who built the shell of the present mansion. He had a botanic garden there, mentioned by Turner (who was his physician) in his *Herbal.* In 1604, we find Syon House in the possession of Henry Earl of Northumberland, who had laid out 9000*l.* on the house and gardens. The house was afterwards greatly enlarged and improved by Inigo Jones, in 1659. The grounds at Syon are generally understood to have been laid out in their present form by Brown, between 1750 and 1760. They were planted with all the foreign hardy trees and shrubs that could be procured, at that time, in the London nurseries; and the place now contains many very fine old specimens of cedars, pines, planes, gleditschias, robinias, catalpas, and more especially of deciduous cypress.

George William, sixth Earl of Coventry, succeeded to the title, and to the estate of Croome d'Abitot, in the year 1738, being then 17 years of age. He soon afterwards, with the assistance of Brown, began to improve the estate, at that time "a mere bog, and a barren waste" (*Dean's Croome Guide*, 1824, p. 37.), and soon converted it into fertile soil, and planted it with all the useful and ornamental trees and shrubs at that time to be procured in the nurseries. The plants have grown with astonishing vigour, and there is now at Croome an extensive collection of species, containing some of the finest specimens of foreign trees and shrubs in the country.

Numerous gentlemen's seats, planted about this time in every part of England, might be cited as containing fine old specimens of foreign trees and shrubs; but we must limit ourselves to a few which took a lead in this taste. Among these may be mentioned, in addition to those already noticed, Busbridge, near Godalming, in Surrey, in 1751, in the possession of Philip Carteret Webb, Esq., and frequently mentioned by Miller; Mount Edgecombe, Earl of Mount Edgecombe; Mamhead, now belonging to W. Newman, Esq.; Powderham Castle, Earl of Devon; High Clere, Earl of Caernarvon; and Chiswick, Duke of Devonshire. There are, doubtless, many places as much or more worthy of being quoted than several of those named; but, as we have invited all proprietors and gardeners in the British Isles to send us accounts of their foreign trees and shrubs for this work, and as many of these have done so, we must refer in this place to the paragraph headed *Statistics*, given to each tree and shrub; where, under each county, will be found the names of all those seats most remarkable for foreign trees and shrubs, with the dimensions and other particulars of the plants they contain.

Several botanic gardens were formed during this century, both at home and abroad; and the exchange of seeds and plants which takes place universally among such establishments increased the foreign productions of each respective country. It also became the practice, in the latter part of this century, for private persons and public bodies to send out botanical collectors. Several of these were sent out from the Royal Gardens at Kew, others by the subscriptions of individuals, and some by nurserymen.

Chelsea Garden (already noticed, p. 47.) is said by Collinson to have been, in his time, the richest in plants in Europe. It was brought to the highest degree of eminence during this century by Miller. Its origin is unknown: the first notice of it, in the books of the Apothecaries' Society, is in 1674, when it was proposed to wall it round; and two years afterwards, in 1676, the Society agreed to purchase the plants growing in Mrs. Cape's garden at Westminster. They may probably also have had plants from the garden mentioned in Evelyn's *Diary* for 1658 as "the medical garden at Westminster, well stored with plants, under [Edward] Morgan, a skilful botanist." Piggot is the name of the first curator of the Chelsea Garden, noticed in 1676. Watts, mentioned both by Ray and Evelyn, was an apothecary by profession, but undertook the care of the garden in 1680, at *50l.* per annum. Miller was appointed to the garden in 1722, at the time Sir Hans Sloane, when applied to for a renewal of the lease of the garden, granted it to the Society in perpetuity, at a rental of *5l.* per annum, and on condition that specimens of fifty new plants should annually be furnished to the Royal Society, till the number amounted to two thousand, that number, at that time, being supposed likely to exhaust the botanical riches of the whole world. Miller resigned his situation as curator, a short time before his death in 1771, and was succeeded by Forsyth, who left it to become royal gardener at Kensington in 1784, and was succeeded by Fairbairn, who died in the garden in 1814. His situation is now filled by Mr. William Anderson, F.L.S. H.S., &c., who has greatly enriched the garden, and contributed materially to its present high character.

The botanic garden at Kew was established in 1760 by the Princess Dowager of Wales. A catalogue was published in 1768 by Dr. Hill; and a more scientific one by Mr. William Aiton in 1789, a second edition of which appeare d in 1810. William Aiton died in 1793, aged 62. He was some time assistant to Philip Miller, at Chelsea, and was recommended to the princess dowager in 1759. In 1783 he was appointed to the care of the pleasure-grounds and kitchen-garden at Kew. The Aitòn*ia* is named after him. He was succeeded by his son, Wm. Townsend Aiton, the present royal gardener there. Kew is more especially interesting to the planter of trees, from its arboretum having been one of the very first that was formed in Britain; and, though many of the species are now lost, and it does not contain more than a fourth part of what are to be found in the Horticultural Society's garden and in the arboretum of the Messrs. Loddiges, there are still existing there many fine specimens. Dr. James Sherard's botanical garden at Eltham, in which he was assisted by Dillenius, was established in the first years of this century, but declined at Dr. Sherard's death in 1737; and, in 1795, nothing remained of it but a fine cedar of Lebanon close to the house, and a few other trees and shrubs. This cedar measured, at the above period, 9 ft. in circumference, at 3 ft. from the ground; and in 1801 it had increased in circumference 6¼ inches. (*Lysons.*) Dr. James Sherard was the brother of Dr. William Sherard, an eminent botanist, and author of several works, who was travelling tutor for many years to several English noblemen, and afterwards British consul at Smyrna, near which he had a fine country house and garden, from which he sent home many seeds and plants. This brother founded the botanical professorship at Oxford, and gave to that establishment his botanical library, and his herbarium. He was the patron of Mark Catesby and of Dr. Dillenius.

Mr. William Curtis, author of the *Botanical Magazine*, first established a small botanic garden at Bermondsey. In 1771 he formed one on a more extensive scale at Lambeth Marsh. In 1789 he removed his plants to Brompton, where he died in 1799, aged 53 years. His partner, and successor, Mr. William Salisbury, removed this garden to Cadogan Place, Sloane Street, where an arboretum was planted, and the grounds are now (1835) occupied as a subscription garden and as a nursery.

A private botanic garden was founded at Twickenham about 1789, by William Swainson, the proprietor of some popular vegetable medicines. It contained every tree and shrub that could be procured at the time in the British nurseries, and was kept up in the very first style of order and neatness till Mr. Swainson's death in 1806. It is now the property of Mrs. Canham, and is managed by Mr. Robert Castles, an enthusiastic lover of plants, and an excellent man.

Various other gardens might be mentioned as having contributed to spread a taste for foreign trees and shrubs towards the latter end of this century; and the names of a number of writers on botany and gardening would also deserve commemoration here, were they not already recorded in the historical part of our *Encyclopædia of Gardening*. The reader who thinks we might have extended this part of our work will bear this in mind; and also that it has been our object, throughout this Introduction, to repeat nothing which we have already laid before the public.

The only extensive nursery at the beginning of this century was, as we have before seen (p. 46.), that of Brompton Park, occupied by London and Wise. Those of Gray of Fulham, of Furber of Kensington, of Fairchild of Hoxton, Gordon of Mile End, and Hunt of Putney, became eminent before the middle of the century; and those of Lee and Kennedy, William Malcolm, Russell, Loddiges, and others, were large establishments before the end of it.

Gray commenced his nursery at Fulham early in the 18th century. He received many American trees and shrubs from collectors and resident amateurs in America, and enriched his stock at the sale of Dr. Compton's trees. In 1740, he published a catalogue of his plants, which is said to have been written by Philip Miller. In the preface to Catesby's *Hortus Europæus Americanus*, which is dated 1767, it is said, that "Mr. Gray at Fulham has, for many years, made it his business to raise and cultivate the plants of America, from whence he has annually fresh supplies, in order to furnish the curious with what they want;" and that, "through his industry and skill, a greater variety of American forest trees and shrubs may be seen in his gardens, than in any other place in England." This nursery is now in the possession of Messrs. Whitley and Osborne, and still retains its reputation for American trees and shrubs. It also contains some fine old specimens of the trees planted by Gray. Among these are Quércus *S*ùber, *C*éltis occidentàlis, *Ailántus* glandulòsa, *L*aúrus *Sássafras*, Kœlreutèr*ia* paniculàta, *D*iospỳros virginiàna, and various others. The first Magnòl*ia* grandiflòra which was brought to England (as generally supposed) was planted in this nursery, and all the old trees of the kind in the country are said to have been propagated from it. The tree died about 1810; but its trunk, which measures 4 ft. 10 in. in circumference, was, till very lately, preserved. The branches extended over a surface 20 ft. in diameter, it was as many feet high, and in the blossoming season, which lasted generally two or three months, it perfumed the whole neighbourhood. It was surrounded by stages from the ground to its summit, on which were placed pots containing layers for propagation. It was the number of these, and the exhaustion they occasioned, which killed the tree.

Furber, mentioned by Collinson, was a nurseryman at Kensington, and one of those gardeners who formed a society for publishing a work on gardening, of whose *Catalogue* some account is given in p. 60. Miller was secretary of this society, which, as it is said, dissolving through difference of opinion, the papers became Miller's, and led to the publication of his *Dictionary.* Furber's grounds are now partly built on, and the remainder forms part of Messrs. William Malcolm and Co.'s nursery.

Thomas Fairchild had a nursery and an excellent vineyard. For the time in which he lived, he was a scientific gardener, and distinguished himself by a paper, in the *Royal Society's Transactions* (vol. xxxiii. p. 127.), "On the different, and sometimes contrary, Motion of the Sap in Plants." He introduced various new trees and shrubs from the Continent of Europe and North America, as will be seen by the list at the end of this section. He was author of the *City Gardener.* He died in 1729, and left funds for a botanical sermon, to be delivered annually on Whitsun Tuesday, at St. Leonard's, Shoreditch. The legacy left by Fairchild produced a guinea a year, but this sum being thought insufficient, a subscription was entered into, the produce of which has raised the annual sum to three guineas. These sermons were preached for many years by Dr. Colin Milne, author of the *Botanical Dictionary,* by whom they were published in 1779. The sermon is now preached annually by the Rev. William Ellis, of Merchant Tailors' School. Some curious details respecting this legacy will be found in Henry Elles's *Account of the Parish of St. Leonard's, Shoreditch.*

James Gordon, nurseryman at Mile End, London, who had previously been gardener to Robert Lord Petre, is thus spoken of in a letter from Ellis to Linnæus, dated April 25. 1758:—

"If you want a correspondent here that is a curious gardener, I shall recommend you to Mr. James Gordon, gardener at Mile End, London. This man was bred under Lord Petre and Dr. Sherard, and knows systematically all the plants he cultivates. He has more knowledge in vegetation than all the gardeners and writers on gardening in England put together; but he is too modest to publish anything. If you send him any thing rare, he will make you a proper return. We have got a rare double jessamine (Gardèn*ia* flórida) from the Cape, that is not described: this man has raised it from cuttings, when all the other gardeners have failed in the attempt. I have lately got him a curious collection of seeds from the East Indies, many of which are growing, but are quite new to us. He has got the ginkgo (Salisbùr*ia*), which thrives well, and, when he has increased it, he will dispose of it." (*Smith's Cor.*, vol. i. p. 93.) Gordon commenced his nursery at Mile End in 175–; he disposed of it in 1776, to his sons James and William, and died in 1780. In 1781 we find this nursery in the possession of James Gordon, Thomas Dermer, and Archibald Thompson. James Gordon died in 1794, and Thomas Dermer in 1799, when Archibald Thompson came into possession of the whole. Mr. Thompson died in 1832, and the business is now carried on by his son James. Only a small part of the original ground is now (1835) occupied as a nursery; but in the part that remains there are some fine old specimens. What is believed to be the oldest salisburia in England, the ginkgo tree above alluded to, is 5 ft. 5 in. in circumference at 1 ft. from the ground, and 55 ft. high. There are venerable specimens of magnolias, *Laúrus Sássafras*, the cork tree and other oaks, the liquidambar both species, ailantus, gymnocladus, and many others, with some of the largest plants of green tea growing in the open air in England. A list of the more remarkable of these trees and shrubs, with their dimensions taken in 1831, will be found in the *Gard. Mag.* for the following year, vol. viii. p. 250.; and subsequent measurements of several of them taken in January, 1835, will be found in the same magazine, vol. xi.

Of the Hunts of Putney we know little, except that their names appear among the authors of the *Catalogue* of the trees and shrubs grown in the London nurseries in the year 1730. The nursery at Putney was little known in our time, and the stock was sold off, and the ground advertised to be let for building on, in December, 1834.

James Lee was born at Selkirk in 1715, and, about twenty years afterwards, walked to London. When he was at Lichfield he was seized with the smallpox, and detained there some time. When he recovered, and came to London, he was employed at Syon, and afterwards at Whitton by the Duke of Argyle. About the year 1760 he entered into partnership with Lewis Kennedy, gardener to Lord Bolton, at Chiswick, and commenced a nursery in what was called the Vineyard, at Hammersmith. At the beginning of the last century, this vineyard produced annually a considerable quantity of Burgundy wine. A thatched house was built in the grounds, the upper part occupied as a dwelling-house and for selling the wine, and underneath were the wine-cellars. Lee was patronised by the Earl of Islay (afterwards Duke of Argyle), the planter of Whitton, who died in 1761; and other noblemen: he corresponded with Linnæus, and composed an *Introduction to Botany*, according to his system, published in 1760, which for many years was in the highest repute. He died in the year 1795, at the age of 80 years; his partner, Kennedy, having died previously. The nursery was carried on by the sons of the two founders, till 1818, when they dissolved partnership. It then became the sole property of James Lee, the second of that name, who died in 1827, leaving it to his family, and it is now (1835) carried on by his son John. For many years this nursery was deservedly considered the first in the world. Besides an extensive correspondence, and a vigilant attention to procure every new plant as soon as it was introduced by others, Messrs. Lee and Kennedy introduced many plants into the country, through collectors whom they had sent abroad, and through foreign botanists. They maintained a collector in America, who sent home several new oaks; and, in partnership with the Empress Josephine, one at the Cape of Good Hope, who sent home many new ericas, ixias, and other Cape plants. They had also a collector in South America, who sent home the Fúchs*ia* coccínea, by which they made a considerable sum of money, selling it for some time at a guinea a plant. They also had the first China rose in 1787, of which they made a large sum. The extent of this nursery has been somewhat curtailed by the approach of London; but it still contains an excellent collection, some fine specimens of magnolias, asiminas, cratæguses, *P*ýrus *S*órbus, and other foreign trees and shrubs, and is conducted with the greatest liberality.

The nursery of Messrs. Malcolm and Co. was established about the middle of the century, first at Kennington, and afterwards at Stockwell, and was at one time one of the most extensive in the neighbourhood of London. The ground has long since been built on; but one of the descendants of the family, as before observed, occupies, with other grounds, part of the nursery which was Furber's, at Kensington.

The nurseries of Russells, at Lewisham; of Bassington, at Kingsland; of Cormack, at New Cross; of Ronalds, at Brentford; and a number of others, some of which are now extinct, and others more eminent than before; were all more or less celebrated during the latter part of this century.

The nursery at Hackney was established about the middle of the century by John Busch (in the *Hortus Kewensis* erroneously spelt Bush), a German gardener, who, entering into the service of the Empress Catherine in 1771, was succeeded in his nursery, in that year, by Conrad Loddiges, also a native of Germany. This nursery soon became celebrated for the introduction and propagation of American trees and shrubs, particularly magnolias, rhododendrons, and azaleas. It will be noticed more at length in the succeeding section.

The botanical and horticultural authors and garden artists of England during this century, who contributed to the spread of a taste for foreign trees and shrubs by their writings and practice, are numerous. We have already mentioned Brown, to whom we may add, among artists and authors, Switzer, a seedsman, at "the Flower Pot over-against the Court of Common Pleas in Westminster Hall, or at his garden in Milbank, Westminster," author of *Iconographia Rustica*, and several other works, and the designer of various gardens both in Britain and Ireland; Bradley, a voluminous author; Batty Langley, an architect at Twickenham, who wrote *New Principles of Gardening, &c.*, and *The true Method of improving an Estate by Plantations of Timber Trees, &c.;* Dr. John Hill, a voluminous gardening author; Sir William Chambers, who wrote *Dissertations on Oriental Gardening;* Wheeler, a nurseryman at Gloucester, and author of *The Botanist's and Gardener's New Dictionary;* Abercrombie, a well known voluminous author; Weston; Speechley; Dr. A. Hunter, the editor of Evelyn's *Sylva;* Meader, gardener to the Duke of Northumberland; Græfer, gardener to the Earl of Coventry at Croome, and afterwards to the King of Naples at Caserta; and a great number of others. We should have been tempted to submit some notices of these authors and their works, did we not expect a *Chronological and Biographical History* of them from the accurate and learned pen of William Forsyth, Esq. To this gentleman, who has been for many years collecting information respecting trees and shrubs, we are deeply indebted for many corrections and additions to this chapter, and to our work generally.

In order to give a general summary of the trees and shrubs introduced into Britain during the eighteenth century, we shall divide it into periods of ten years; and give in each the names of some of the principal plants introduced, and those of their introducers, according to the *Hortus Kewensis*, and to some farther information on the subject, kindly furnished to us by Mr. Forsyth, and Messrs. Loddiges of Hackney.

From 1701 to 1710 inclusive (Queen Anne), four trees and five shrubs were introduced. Among the trees were, *F*ráxinus *l*entiscifòlia from Aleppo, and *P*tèlea trifoliàta from North America, by the Rev. John Banister. *C*ratæ`gus parvifòlia was introduced by Bishop Compton, and *Rìbes o*xyacanthöides by Mr. Reynardson of Hillington. Bignòn*ia* capreolàta, a beautiful climber, and *C*olùtea cruénta, a handsome flowering shrub, were introduced during this period.

From 1711 to 1720 (Anne and Geo. I.), three trees and nine shrubs were introduced: among these were, Pàv*ia* rùbra, by Thos. Fairchild; *P*ìnus *T*æ`da, and *C*eanòthus americànus, by Bishop Compton; *C*érasus *Mahàleb*, from Austria; and Comptòn*ia a*spleniifòlia, *L*ýcium àfrum, and *I*`va frutéscens, by the Duchess of Beaufort.

From 1721 to 1730 (Geo. I. and II.), twenty-two trees and twenty shrubs were introduced. Mark Catesby introduced

Gledítsch*ia* monospérma, *Catálpa syringæ*fòlia, Calycánthus floridus, *C*ratæ̀gus flàva, and Amórpha fruticòsa. Mr. Moore introduced *F*ráxinus americàna; Robert Furber, *Ó*strya vulgàris, *P*ỳrus coronària, *P*látanus *a*cerifòlia, *Q*uércus álba, *R*hús radìcans, and *V*ibúrnum lævigàtum. Dr. James Sherard introduced *Á*rbutus *A*ndráchne, *R*hús glàbra, and *R*òsa caroliniàna. Sir Charles Wager introduced *À*cer dasycárpum; Miller, *C*lématis críspa, Santolìna víridis, and some others, which are recorded as being cultivated in the Chelsea Garden during this period. Among the species introduced or recorded, but without the name of the introducer, are, *C*érasus virginiàna, *T*ília pubéscens, *Á*lnus oblongàta, *C*àrya compréssa, *C*ércis canadénsis, *Q*uércus gramúntia, *Q.* serícea, and *Q. P*rìnus, *P*ìnus palústris, *E*uónymus latifòlius, *C*aprifòlium gràtum, *R*hús élegans, Wistàr*ia* frutéscens, and a number of others.

From 1731 to 1740 (Geo. II.), twenty-four trees and forty-five shrubs were introduced. Mr. Stephen Bacon introduced the *C*lèthra *a*lnifòlia; Thomas Fairchild, the *C*órnus flórida; Miller no fewer than thirty species, including *C*ratæ̀gus cordàta, *P*ópulus angulàta, *À*cer monspessulànum, *C*árpinus orientàlis, *C*éltis Tournefórt*ii*, *P*látanus cuneàta; *Q*uércus *Æ̀*gilops, nìgra, rùbra, and vìrens; *P*ìnus ìnops and variábilis; and several others. Collinson, between 1734 and 1739, introduced twenty-six species, among which we find Magnòl*ia* acuminàta in 1736; the first azaleas that were in the country, namely, Azàlea nudiflòra, viscòsa, and glaúca; Kálm*ia* latifòlia and angustifòlia, Andrómed*a* mariàna and racemòsa, *R*hododéndron máximum, Chionánthus virgínica, *À*cer sacchárinum, Cephalánthus occidentàlis, Nýss*a* denticulàta, several species of *V*ibúrnum, and that beautiful tree, *L*àrix péndula. Sir John Colliton had in cultivation the Magnòl*ia* grandiflòra from Carolina in 1734, and the lanceolate-leafed variety in 1737. Dr. James Sherard introduced Menispérmum virgínicum; and Dr. Thomas Dale, *P*hiladélphus inodòrus.

From 1741 to 1750 (Geo. II.), there were introduced eight trees and twelve shrubs. Sir John Colliton had the Robín*ia* híspida in cultivation before 1743. Dr. Amman introduced the *C*ýtisus austrìacus; Richard Bateman, the *A*càcia *Julibríssin;* Christopher Gray of Fulham, the *P*ỳrus angustifòlia. Catesby introduced Stuárt*ia* virgínica; and Archibald Duke of Argyll, the *P*ìnus *Cémbra*, Gymnócladus canadénsis, *À*cer montànum, *B*étula papyràcea and *p*opulifòlia, *C*ratæ̀gus punctàta and glandulòsa, *Í*tea virgínica, *C*órylus rostràta, *Amelánchier* Botryàpium, Andrómed*a* calyculàta, and that curious miniature tree, Dírca palústris.

From 1751 to 1760 (Geo. II.), twenty-seven trees and forty-seven shrubs were introduced. Peter Collinson introduced

Broussonèt*ia* papyrífera from Japan in 1751. Father D'Incarville introduced the *Ailántus* glandulòsa from China, also in 1751; Jas. Gordon of Mile End, the *U*'lmus americàna in 1752: that remarkable tree the Salisbùr*ia a*diantifòlia was cultivated by him in 1754; the parent tree, a male, still exists (see p. 78.), and from it, in all probability, originated all the male trees of the same species, not only in Europe, but in North America; he introduced the *Sophòra* japónica in 1753, and the *C*órnus alternifòlia in 1760. Archibald Duke of Argyll introduced the *L*àrix microcárpa and the *S*mìlax rotundifòlia in the same year. John Ellis introduced Halès*ia* tetráptera and díptera in 1756 and 1758; Messrs. Kennedy and Lee, *E*uónymus atropurpùreus; Hugh Duke of Northumberland, *P*ìnus resinòsa; Christopher Gray, *V*ibúrnum nítidum. The Duke of Bedford cultivated *P*ìnus rígida before 1759; and *P*ópulus dilatàta, the Lombardy poplar, was introduced from Italy by the Earl of Rocheford in 1758. No fewer than fifty articles were introduced or cultivated by Miller during this decade. Among these are, *A*'cer créticum, in 1752, probably the small tree still existing in the Chelsea Garden; *A. O*'pulus, heterophýllum, and tatáricum; *D*áphne *C*neòrum and póntica, Lonícer*a* tatárica, Magnòl*ia* tripétala, several species of *R*hámnus, *T*hùja occidentàlis, *T*ília americàna, *A*'bies rùbra, *P*ìnus marítima and several others, *B*étula lénta, *P*ỳrus *p*runifòlia, Cotoneáster tomentòsa, *D*áphne alpìna, Liquidámbar imbérbis. Among the trees and shrubs recorded in the period, without the name of the introducer, are, *A*'cer pennsylvánicum, *Bérberis* canadénsis; *C*érasus caroliniàna, a beautiful sub-evergreen low tree from Carolina, too much neglected in England; *R*òsa sínica, Shephérd*ia* canadénsis, Pláner*a* Richárd*i*, and *O*xycóccus macrocárpus.

From 1761 to 1770 (Geo. III.), twelve trees and forty shrubs were introduced. Jas. Gordon introduced, or had in cultivation, *T*ília álba, *B*étula excélsa, *C*lématis virginiàna, *V*ibúrnum *cassinö*ìdes and Lentàgo, *H*ypéricum alàtum, and *E*uónymus verrucòsus. John Bartram introduced Mitchéll*a* rèpens; John Busch, *L*èdum palústre, Fothergíll*a a*lnifòlia, Xanthorhìza *a*piifòlia; Mr. Bennet, *L*èdum latifòlium; George William Earl of Coventry, Kölreutèr*ia* paniculàta from China, *E*rìca austràlis, and *S*àlix retùsa from Italy. John Greening cultivated Pàv*ia* flàva; Joseph Brooks, *E*rìca strícta; John Cree, *B*umèlia tènax; Dr. Fothergill, *P*ópulus heterophýlla; Messrs. Kennedy and Lee, *C*ratæ'gus ellíptica, *p*yrifòlia, and that fine tree, *F*àgus ferrugínea. Sir Joseph Banks introduced *R*hodòra canadénsis in 1767; John Ord, *G*enísta tríquetra; Peter Collinson, *A*'lnus serrulàta, and *V*accínium virgàtum; Hugh Duke of Northumberland, *P*ópulus græ'ca and lævigàta; and Miller, *S*ambùcus canadénsis, *G*enísta púrgans, and *R*ùbus híspidus. The

Duchess of Portland introduced *V*accínium frondòsum. Among the plants respecting which merely the dates at which they were introduced to, or first cultivated in, Britain, are recorded in the *Hortus Kewensis*, are, Gaulthèr*ia* procúmbens ; *R*hododéndron pónticum, introduced, we are informed, by Conrad Loddiges, who sold the first plant to the Marquess of Rockingham, a noble encourager of botany and gardening ; Andrómed*a* axillàris, coriàcea, and acuminàta ; *S*tỳrax grandifòlium and lævigàtum, Kálm*ia* glaúca, and that delightful shrub, Chimonánthus fràgrans. The last, we are informed, was first cultivated by the Earl of Coventry at Croome.

From 1771 to 1780 (Geo. III., during the American war), were introduced eight trees and forty-eight shrubs. Mrs. Primmet introduced *G*enísta lusitánica ; Mons. Richard, *U*lmus pùmila, *Caragàna Chamlàgu*, and *C*aprifòlium impléxum ; Sir Joseph Banks, *S*àlix myrtillöìdes from Sweden ; Dr. Solander, *S*piræ̀a lævigàta from Siberia; Dr. Hope of Edinburgh, *P*ópulus cándicans and monilífera. Messrs. Kennedy and Lee introduced Aristotèl*ia Mácqui*, *E*'phedra monostàchya, Búddle*a* globòsa, Gledítsch*ia* hórrida, *R*hámnus *a*lnifòlius, and others. The celebrated botanist and traveller, Pallas, introduced *P*ỳrus *s*alicifòlia in 1780, Diòtis ceratöìdes, and Callígonum Pallàs*ia*. Dr. Nicholas Jacquin introduced *C*ýtisus capitàtus, and *D*rỳpis spinòsa ; Dr. Pitcairn, *V*accínium dumòsum ; Mr. William Malcolm, Gordòn*ia* pubéscens ; Mr. William Young, *V*accínium stamíneum ; John Earl of Bute, *G*enísta germánica ; Hugh Duke of Northumberland, *Caragàna* spinòsa ; Dr. Fothergill, that beautiful tree, *P*ỳrus spectábilis, *B*úxus baleárica, and *C*lématis flórida. *S*àlix incubàcea and *G*enísta decúmbens were introduced by Drs. Fothergill and Pitcairn about the same time. Francis Masson introduced *V*accínium *A*rctostáphylos. Benjamin Bewick introduced *V*accínium angustifòlium.

From 1781 to 1790 (Geo. III., intercourse with America being restored), sixteen trees and thirty-five shrubs were introduced, according to the *Hortus Kewensis*. John Bell introduced *V*ibúrnum däùricum, *B*étula däùrica, and *Caragàna Altagàna*. John Busch introduced *Rìbes* Diacántha and *A*'lnus incàna ; John Græfer, *P*ỳrus bollwylleriàna and baccàta, and that valuable evergreen, *Aúcuba* japónica (female). William Forsyth cultivated *P*ìnus Banks*iàna* in 1785 ; William Young, *F*ráxinus *j*uglandifòlia ; and Daniel Grimwood, *F*ráxinus pubéscens. The Hudson's Bay Company introduced *U*'lmus undulàta ; John Fraser, Magnòl*ia* auriculàta, *R*hododéndron punctàtum, and *Q*uércus lyràta, imbricària, and rotundifòlia ; Sir Joseph Banks, Hydrángea Horténs*ia*, Magnòl*ia* conspícua, *P*æòn*ia Moútan*, *R*òsa índica, *Bérberis* sibírica, and some vacciniums. Gilbert Slater introduced *R*òsa semperflòrens in 1789 ; and the celebrated Professor Thouin, the first horticulturist of his day, Nitrària Schóber*i* in 1788. The following ample list was introduced by Conrad Loddiges during this period; the names having been supplied to us by the present Messrs. Loddiges, his sons: — *M*òrus *tatárica and pennsylvánica; *C*órnus *circinàta, *G*enísta *sibírica, *R*hododéndron *Chamæcístus, *A*`cer hýbridum and trilobàtum, *P*rùnus dasycárpa, *Bérberis* däùrica, *C*ratæ`gus *O*xyacántha *r*òsea; Azàlea speciòsa críspa, nudiflòra rùbra, and nudiflòra stamínea; *B*étula sibírica, *A*mýgdalus sibírica, Andrómed*a* calyculàta var. ventricòsa, *A*'lnus pùmila, *C*órnus sibírica, *Rìbes* triflòrum, *Caragàna* fèrox, *R*òsa aciculàris and corymbòsa, *T*hùja plicàta and tatárica. Of these species introduced by Conrad Loddiges, those marked with a star were received by him from the celebrated botanist and collector for the French government, André Michaux; almost all the others were received from William Bartram of Kingsessing, Pennsylvania.

From 1791 to 1800 (Geo. III.), were introduced nineteen trees and fifty shrubs. John Bell introduced *J*uníperus däùrica, and Azàlea póntica. William Forsyth introduced *Bérberis* *i*licifòlia; Sir George Staunton, *R*òsa bracteàta; John Busch, *Caragàna* jubàta, and *R*hododéndron chrysánthum; Messrs. Lee and Kennedy, *R*òsa fèrox; Messrs. Fraser, *Q*uércus tríloba, tinctòria, palústris, and Baníster*i*. Conrad Loddiges introduced *A*tragène austrìaca and americàna, *C*ýtisus * purpùreus, Andrómed*a* * Catesbæ`*i*, Aràlia híspida; and also, according to Messrs. Loddiges, *C*astànea americàna, *C*ýtisus * supìnus, *J*uníperus alpìna and sibírica, *P*rìnos lanceolàtus and lævigàtus, *S*piræ`a canadénsis; *V*accínium * *b*uxifòlium, elevàtum, hispídulum, pùmilum, *l*igústrinum; *V*ìtis vulpìna álba, v. nìgra, and v. rùbra. Among the plants recorded in the *Hortus Britannicus*, as having been introduced in this decade, are, *C*àrya porcìna and amàra, *P*ỳrus spùria, Magnòl*ia* macrophýlla, Andrómed*a* speciòsa, *R*òsa suavèolens, *P*rùnus marítima, *P*ỳrus auriculàta, *Q*uércus microcárpa, and several others.

Of the nearly 500 hardy trees and shrubs introduced during this century, 108 are from the continent of Europe, 300 are from North America, 3 from Chili, 13 from China, 6 from Japan, 2 from the Cape of Good Hope, 33 from Siberia, 2 from Tartary, 1 from Egypt, 2 from Morocco, 1 from Aleppo, 1 from Barbary, and the remaining few chiefly from Asia.

In the early part of the century, the greater number of species appear to have been received by Peter Collinson, from Dr. Garden of Charlestown, John Bartram, Mark Catesby, and other collectors. The progress of introduction was interrupted during the eighth decade of the century (1771 to 1780), owing to the breaking out of the American war; but it revived with double vigour between 1780 and 1800, during which period by far the greater number of trees and shrubs introduced were received by Conrad Loddiges, and chiefly from William Bartram, the son of John. The Bartrams, indeed, and André Michaux, were the great collectors of American plants during the 18th century. Michaux sent almost every thing to France, by the government of which he was employed; but the Bartrams were Americans, and corresponded chiefly with the Kew Botanic Garden, and with the London nurserymen and amateurs. A number of trees and shrubs were introduced during the 18th century by John Fraser, but the chief accessions to the British arboretum and fruticetum made by this indefatigable collector were in the succeeding century.

John Bartram, one of the most distinguished of American botanists, was born in Chester County, Pennsylvania, in 1701. His grandfather, of the same name, accompanied William Penn to this country in 1682. John Bartram was a simple farmer; he cultivated the ground for subsistence, while he indulged an insatiable desire for botany. He was self-taught in that science, and in the rudiments of the learned languages, and medicine and surgery. So great, in the end, was his proficiency in his favourite pursuit, that Linnæus pronounced him "the greatest natural botanist in the world." He made excursions, in the intervals of agricultural labour, to Florida and Canada, herborising with intense zeal and delight. At the age of 70, he performed a journey to East Florida, to explore its natural productions; at a period, too, when the toils and dangers of such an expedition far exceeded those of any similar one which could be undertaken at the present time, within the limits of the United States. He first formed a botanic garden in America, for the cultivation of American plants as well as exotics. This garden, which is situated on the banks of the Schuylkill, a few miles from Philadelphia, still bears his name. He contributed much to the gardens of Europe, and corresponded with the most distinguished naturalists of that quarter of the globe. Several foreign societies and academies bestowed their honours upon him, and published communications from him in their *Transactions*. John Bartram died in 1777, in the 76th year of his age. At the time of his death he held the office of American botanist to George III. of England. He was amiable and charitable, and of the strictest probity and temperance. (*Encyc. Amer.*)

William Bartram, fourth son of John Bartram, was born in 1739, at the Botanic Garden, Kingsessing, Pennsylvania. At the age of 16 years he was placed with a respectable merchant of Philadelphia, with whom he continued six years; after which he went to North Carolina, with a view of doing business there as a merchant: but, being ardently attached to the study of botany, he relinquished his mercantile pursuits, and accompanied his father in a journey into East Florida, to explore the natural productions of that country; after which he settled on the river St. John's, in that region, and finally returned, about the year 1771, to his father's residence. In 1773, at the request of Dr. Fothergill of London, he embarked for Charleston, to examine the natural productions of the Floridas and the western parts of Carolina and Georgia, chiefly in the vegetable kingdom. In this employment he was engaged nearly five years, and made numerous contributions to the natural history of the country through which he travelled. His collections and drawings were forwarded to Dr. Fothergill; and about the year 1790 Bartram published an account of his travels and discoveries in one volume 8vo, with an account of the manners and customs of the Creeks, Cherokees, and Choctaws. This work soon acquired extensive popularity, and is still frequently consulted. After his return from his travels, he devoted himself to science, and, in 1782, was elected professor of botany in the university of Pennsylvania, which post he declined in consequence of the state of his health. In 1786 he was elected a member of the American Philosophical Society, and was a member of several other learned societies in Europe and America. We are indebted to him for the knowledge of many curious and beautiful plants peculiar to North America, and for the most complete and correct table of American ornithology, before the work of Wilson, who was assisted by him in the commencement of his *American Ornithology.* He wrote an article on the natural history of a plant a few minutes before his death, which happened suddenly, by the rupture of a blood-vessel in the lungs, July 22. 1823, in the 85th year of his age. (*Ibid.*)

In Scotland, as we have seen (p. 48.), very little was done in the way of introducing foreign trees and shrubs, during the seventeenth century; though the rudiments of this description of improvement were laid about the end of it, by the establishment of the Edinburgh Botanic Garden. In Nicolson's *Scottish Historical Library*, published in 1702, this garden is stated to have been brought to the highest degree of perfection by its curator, Mr. James Sutherland, " whose extraordinary skill and industry" are said to have greatly advanced this department of natural history in Scotland. In Sibbald's *Scotia Illustrata*, published in 1684, the Edinburgh Botanic Garden is said to contain an arboretum, in which was " every kind of tree and shrub, as well barren as fruit-bearing, the whole disposed in fair order" (p. 66.); and in Sibbald's *Memoria Balfouriana*, published in 1699, this garden is said to be " the greatest ornament of the city of Edinburgh." (p. 73.) The plants of this garden have been twice removed to other situations (first in 1767, and again in 1822), and we believe there is now neither a tree nor a shrub on the original site. Notwithstanding the example shown by the arboretum in the Botanic Garden, however, the planting of foreign trees and shrubs still appears to have been but little practised in Scotland. A public garden, to contain fruit trees, it appears, was projected for Edinburgh so early as 1662. Maitland informs us that the town council of Edinburgh, "by their act of 15th of March, 1662 (*Coun. Rep.*, vol. xxi. f. 99.), demised to John Thomsone, gardener, for a term of nineteen years, the plot of ground at present called Parliament Close, with the brae or side of the hill, inclosed with a stonern wall;" and that "'the said Thomsone was to plant a hedge as the eastern boundary.' This spot of ground, according to the tenour of the tack, or lease, was to be laid out in walks, and to be planted with trees, herbs, and flowers, exclusive of cabbage, and other common garden stuff. Pursuant to the above agreement, Thomsone, on the 8th of April following, delivered to the council a plan for beautifying the inclosure, which was approved of." Two walks were to be made, a larger and a less one, from east to west; and "their western end, opposite to the Parliament House, was ordered to be planted with plum and cherry trees; and to be bordered with gooseberry, currant, and rose bushes; and flowers to be set along the southern wall or wooden rail at the head of the brae, or brow of the hill; and, at the eastern end, as aforesaid, a hedge." (*Maitland's Hist. of Edin.*, p. 186.) It seems, however, from a subsequent passage, that the plan for this garden was never carried into execution, and that the eastern boundary of the Parliament Close was let soon after for building small shops. Reid, in his *Scots Gardener*, published in 1683, mentions very few trees and shrubs. The most rare of these are, the evergreen oak, the cypress, and the arbutus. He says there are the Indian and Spanish jasmines, myrtles, oleanders, and orange trees, which some are at great pains in governing; but he adds, "for my part I would rather be in the woods, parks, &c., measuring, planting, and improving." (p. 112.) Those who are curious in trees and other plants, he refers to the catalogue of the "learned and most ingenious Mr. James Sutherland, Physic Gardener at Edinburgh." (p. 114.) It appears by an *Essay on Enclosing, Planting, &c., in Scotland*, published in Edinburgh in 1729, that there was "but a very little stock of trees, either barren, fruit, or hedging quicksets. One who encloses," continues the author, "must get his quicksets from England or Holland, or he must sow Devonshire or French whin seed." (p. 289.)

It is fortunate for the historian of tree culture in Scotland, that such a writer existed before him as the late Dr. Walker, professor of natural history in the university of Edinburgh. This excellent man, whose garden we have seen in our younger days, at Collington, near Edinburgh, was ardently attached to the study of organised nature from his youth; and, as he mentions in a letter to Lord Kaims, published in Tytler's life of that eminent man, more particularly to plants. Wherever Dr. Walker went, he seems to have paid peculiar attention to trees and plantations; and there are few works which contain sounder information on the subject than his *Economical History of the Hebrides and Highlands of Scotland*, published in 1812, nine years after the author's death, which happened in 1803. The facts, as to trees, given in this history, were collected, Dr. Walker informs us, between the years 1760 and 1786; and, as will appear from the following extracts, they are of very great interest.

"The first trees planted by art in Scotland," says Dr. Walker, "were those of foreign growth, and especially the fruit-bearing trees. Long before the Reformation, various orchard fruits, brought probably from France, were cultivated in the gardens of the religious houses in Scotland. Some of these fruit trees, planted, perhaps, but a little before the Reformation, still remain. A few exotic barren trees were likewise propagated, such as the elder and the sycamore, and, at a later date, the beech and the chestnut; but none of our native trees were planted, such as the fir [pine], oak, ash, elm, and birch, till about the beginning of the last century. The first exotic tree of the barren kind planted in Scotland seems to have been the elder. Though a slow-growing and long-lived tree, many generations of it have succeeded each other in that country. Elder trees of a large size and very ancient date still appear; not only about old castles, but about the most considerable and oldest farm-houses. It was very generally planted, and for a very useful and peculiar purpose, the wood of the elder being accounted, in old times, preferable to every other sort for the making of arrows. The plane [sycamore, *A*`cer Pseùdo-*P*látanus], in point of antiquity, appears to be the next. When it was first introduced is uncertain; but it seems not only to have been planted, but to have been propagated by seeds and suckers, for several generations before any other forest tree was introduced into Scotland. The wood of this tree, in old times, must have been of great value in the hands of the turner; and for that purpose chiefly it seems to have been cultivated. It is better adapted for the wooden bowls, dishes, platters, and other domestic utensils which were universally in use, than the wood of any native tree in the country. These, however, the elder and the sycamore, appear to have been the only two barren trees planted in Scotland, till towards the middle of the seventeenth century."

Perhaps the oldest sycamore in Scotland, and which appears to be at the same time the largest tree of the kind in Britain, is that at Kippenross, in Perthshire. In 1823, it measured 28 ft. 9 in. in circumference, at a foot from the ground. It appears, from a statement made by the Earl of Mar to Mr. Monteith, that this tree went by the name of "the big tree in Kippenross" in the time of Charles II. (*Monteith's Forester's Guide*, 2d edit. p. 394.) In the grounds of Callendar House, near Falkirk, there are sycamores and other trees of great size, which must have been planted at the commencement of the 18th century, if not in the latter part of the 17th century. Dr. Graham states, on authority which he considers almost approaching to a certainty, that these trees were planted by the Earl of Linlithgow and Callendar, who had accompanied Charles II. in his exile, upon his return from the Continent, after the Restoration. The dimensions of these remarkable trees are given in the appendix to the *General Report of Scotland*, vol. iv. p. 482.

We are not aware of any elder trees in Scotland of any great size or indicating great age. The tree is so completely naturalised there, more especially about houses and places where cultivation has long existed, that, if it were not for Dr. Walker's statement, we should never have supposed it to be otherwise than an indigenous tree.

The sweet chestnut and the beech, producing seeds easily portable from other countries, were in all probability introduced into Scotland by the Romans, and, perhaps, reintroduced by the religious establishments in the middle ages. According to Dr. Walker, "a few chestnuts and beeches were first planted in gardens not long before the middle of the seventeenth century, some of which have remained till our own times. Such was the chestnut at Finhaven; another at Levenside in Dumbartonshire, which was thrown down by the hurricane in 1739; and two or three, which were alive and vigorous, at Kinfauns in Perthshire, in the year 1761. Such was the great beech at Taymouth, overturned by a storm some years ago; the beech at Oxenford; that at Newbattle in Mid Lothian; and another at Ormiston Hall in East Lothian."

The two last-named beech trees, we conclude, from Sir Thos. Dick Lauder's notes respecting them in his edition of Gilpin's *Forest Scenery*, vol. i. p. 266., are decayed; and we believe that the largest beech trees now existing in Scotland are at Ardkinglass in Argyllshire, and one mentioned by Mr. Sang (*Planter's Calendar*, 2d edit. p. 52.) as growing at Panmure in Forfarshire. The latter is 26 ft. 6 in. in circumference, at the surface of the ground; and the former as large, with a longer stem and a finer head. (*Gilpin, &c.*, p. 267.) One of the largest sweet chestnuts in Scotland is at Cairn Salloch in Dumfriesshire; at 2 ft. from the surface of the ground it measures 26 ft. in girt; and it is divided into four large arms, 26 ft., 35 ft., 31 ft., and 28 ft. in length. There is a very old tree at Riccarton, near Edinburgh, which has been described and figured by Sir Thomas Dick Lauder. The trunk is much injured and decayed; but its boughs and foliage are of luxuriant growth; the branches hang down to the ground, and, in many places, have rooted into it. The trunk is 27 ft. in girt at the surface of the ground, and the branches cover an area of 77 ft. in diameter. (*Ibid.*, p. 268.)

Dr. Walker mentions (p. 213.) some sweet chestnuts which he found, about 1760, in a thriving condition in the Island of Inchmahona, in the Lake of Menteith, in Perthshire, where there was a priory founded by King David I. Dr. Patrick Graham measured some of these trees in 1813, and found the trunks to be 18 ft. in circumference at 6 ft. from the ground. (*General Report of Scotland*, vol. ii. p. 254.) He thinks they were then 300 years old, or upwards, which would carry the date of their planting back to the commencement of the sixteenth century. According to Dr. Walker, as before quoted (p. 34.), the sweet chestnut at Finhaven was both the largest tree of the kind in Scotland, and the first tree planted there by art. "In the year 1760, a great part of the trunk of this remarkable tree, and some of its branches, remained. The measures of this tree were taken before two justices of the peace, in the year 1744. By an attested copy of this measurement, it appeared, at that time, that at half a foot above the ground, it was 42 ft. 8½ in. in circumference. As this chestnut appears, from its dimensions, to have been planted about 500 years ago, it may be presumed to be the oldest planted tree that is extant, or that we have any account of, in Scotland." (*Walker's Essays*, p. 29.) Sir Thomas Dick Lauder states, that, "in the possession of Skene of Carriston, there is a table made of the wood of this tree, having an engraved plate, on which are marked its dimensions. The castle of Finhaven was an ancient seat of the Earls of Crawford." (*Lauder's Gilpin*, vol. i. p. 269.)

To the research of Dr. Walker we are indebted for the following list of trees in Scotland, with the name of the places where they were introduced: —

1664.	*T*ília europæ`a, lime.	Taymouth.
1678.	*S*àlix álba, white willow.	Prestonfield.
1682.	*A*`bies *P*ícea and excélsa, silver and pitch fir.	Inverary.
	A'cer, maple.	Inverary.
1690.	*J*ùglans règia, walnut.	Kinross.
1692.	*C*árpinus *B*étulus, hornbeam.	Drumlanerig.
1695.	*C*érasus lusitánica, the Portugal laurel. (*Gard. Mag.*, vol. ii. p. 178.)	Inverary.
1696.	*P*ópulus nìgra, black poplar.	Hamilton.
1705.	*C*ýtisus alpìnus, alpine laburnum.	Panmure.
1709.	*Æ*'sculus Hippocástanum, horsechestnut.	New Posso.

1710.	*P*látanus orientàlis, Oriental plane.	Holyrood House.
1712.	*O'*rnus europæ`a, flowering ash.	Bargally.
1725.	*P*ìnus *S*tròbus, Weymouth pine.	Dunkeld.
1727.	*L*àrix europæ`a, larch.	Dunkeld.
1730.	*Q*uércus *I'*lex, evergreen oak.	New Hailes.
1732.	*A*`bies balsamífera, balm of Gilead fir.	Arbigland.
1733.	Taxòdium dístichum, deciduous cypress.	Loudon.
1734.	*Q*uércus *Æ'*gilops *L.*, Velonia oak.	New Hailes.
1736.	*U'*lmus campéstris, English elm.	Dalmahoy.
1738.	*A'*cer *p*latanöìdes *L.*, Norway maple.	Mountstewart.
1739.	*S*àlix phlorágna [q. triándra], Tine-bark willow.	Newhails.
1740.	*C*èdrus Libàni, cedar of Lebanon.	Hopetoun.
1743.	*C*érasus carolinénsis, Carolina bird-cherry.	Hopetoun.
1744.	*C*órylus ?*C*olúrna, Hungarian nut.	Carmichael.
1746.	*S*àlix amerìna, Amerina willow.	Mellerstane.
1754.	*A*`cer sacchàrinum, sugar maple.	New Posso.
1759.	*A*`bies canadénsis, white Newfoundland spruce, or hemlock spruce.	New Posso.
1763.	*F*ráxinus americàna and sp., white and blue American ash.	
	*P*ìnus longifòlia, long-leaved American pine.	
	A`cer pennsylvánicum, snake-barked maple.	
	*L*àrix nìgra, American larch.	
	*B*étula papyrífera, the paper birch.	
1765.	*B*étula nìgra *L.*, black American birch.	Elliock.
1766.	*P*ópulus dilatàta, Lombardy poplar.	New Posso.
1770.	*P*ópulus balsamífera, balsam poplar.	Leith.

From this period (1770) the intercourse between Scotland and England became so frequent, that the dates of the introduction of foreign trees and shrubs into the two countries may be considered as merged into one.

It would be interesting to know some particulars respecting the tastes and pursuits of the proprietors of the places mentioned in Dr. Walker's list; but at this distant period, we have been able to glean very little suitable to our purpose respecting them.

Taymouth, in the central highlands of Perthshire, is a very old seat of the Campbells. Pennant says the castle was first built by Sir John Campbell, sixth knight of Lochow, who died in 1583. The place, he says, has been much modernised since the days of the founder, and has lost its castellated form, as well as its old name of Balloch Castle. The place has subsequently undergone a great variety of alterations, and at present is remarkable for the extent of its woods and plantations, and for a fine avenue of lime trees. The present proprietor is John Campbell, Marquess of Breadalbane.

Inverary Castle was inhabited by a Colin Campbell before

1480; and is now the property of George William Campbell, Duke of Argyll. It is a magnificent place, from its great extent, with the sea in front, and backed by wooded hills and lofty mountains. The house is an immense quadrangular building, and with the plantations and pleasure-grounds, are said to have cost, within the last half century, upwards of 300,000*l.* The Portugal laurel was introduced here in 1695, and is said to have been brought from Portugal by Duke Archibald; one tree spreads over a circle of 165 ft. in circumference, and is nearly 40 ft. high. In Smith's *Agricultural Report of Argyllshire*, the oldest and largest trees at Inverary are supposed to have been planted by the Marquess of Argyll (frequently mentioned by Evelyn as a great planter), between the years 1650 and 1660. Those of the next largest size and age were raised from seed by Archibald Duke of Argyll in 1746 or 1747. These latter consist chiefly of larches, New England pines, and spruce and silver firs. (*Report, &c.*, p. 156.) The soil and climate at Inverary are said to be remarkably favourable for the growth of trees.

Prestonfield is a well known place in the neighbourhood of Edinburgh, which, in 1783, belonged to Sir Alexander Dick, a great horticulturist as well as agriculturist, and distinguished by having been the first to produce good medicinal rhubarb in Scotland. (See *Wight's Husbandry of Scotland*, vol. iii. pt. ii. p. 443.) Kinross was built and planted, about 1685, by Sir William Bruce, the celebrated architect, for his own residence, and was the first good house of regular architecture in Scotland. It was approached by a fine avenue of trees. Drumlanrig, in Dumfriesshire, was built by the Duke of Queensberry in a commanding situation: it took ten years in building, and was finished in 1689. The duke expended an immense sum in forming terraced gardens, which, according to Gilpin (*Observations, &c., in Scotland*, 1776), served only to deform a very delightful piece of scenery. The duke, he adds, seems to have been aware of his folly, for he is said to have "bundled up all the accounts together, and inscribed them with a grievous curse on any of his posterity who should ever look into them." The property now belongs to the Duke of Buccleugh and Queensberry, who is planting and building there very extensively. (See an account of Drumlanrig, when visited by us in 1831, in the *Gardener's Magazine*, vol. ix. p. 1.)

Hamilton Palace, in Lanarkshire, the ancient seat of the Dukes of Hamilton, was built at different periods; the most ancient part in 1501. The grounds were laid out in the year 1690. The gardens and lawns near the house were planted with foreign trees, especially lime trees, some fine specimens of which still remain. One of the earliest nursery gardens in Scotland appears to have been established at the little village of

Hamilton, close by the palace, being the only garden for the sale of plants mentioned by Reid in his *Scots Gardener*, published in 1683. Among the oaks of Hamilton Park, so famous down to the end of the seventeenth century, there were trees, Nasmyth informs us, which measured 27 feet round the trunk, with wide expansive branches. (*Agriculture of Clydesdale*, p. 144.)

Panmure is the name of an ancient family in Angusshire, whose chief seat is the spacious and hospitable mansion of Brechin Castle, which, from the remotest period of its history, has always been possessed by the Maules, formerly Earls of Panmure. Panmure, another seat of this family, is near Dundee, and was built about 1665. It is a venerable fabric, and is kept by the proprietor, with all its furniture and pictures, in the same state in which it descended from his ancestors. In Dr. Walker's time, Panmure was famous for its laburnums, which were planted towards the end of the seventeenth century, and had attained a great size in 1780. Sang says that a considerable quantity of the laburnums at Panmure and Brechin were cut down in 1809, and sold by public sale at fully 10*s.* 6*d.* a foot, chiefly to cabinetmakers.

New Posso, in Peeblesshire, was formerly called Dalwick, Dawick, or Daick. It belonged, in very ancient times, to the chiefs of a very considerable family of the name of Veitch; but, in 1715, it was in the possession of Sir James Nasmyth of Posso, an eminent lawyer, who rebuilt the house and garden, and by some ornamental planting added greatly to the beauty of the place. Pennicuick mentions that, in an old orchard near the house, the herons built their nests upon some pear trees, which were large and old trees in 1715. Armstrong, in 1775, says that New Posso, formerly called Dalwick, " from being a lonely mansion in the bosom of a gloomy mountain, is now the extreme reverse. The vast improvements made by its present possessor have proved not only an ornament to Tweeddale, but a worthy example for emulation in the gentlemen of the county. The botanical and culinary gardens are justly esteemed the most copious in it; and the pleasurable attention with which they are cultivated, is sufficiently expressed on the front of the greenhouse, alluding to its flowers, ' Solomon in all his glory was not arrayed like one of these.' " (*Armstrong.*)

" The name of New Posso," Dr. Pennicuick tells us, " was given to the place by Sir James Nasmyth, grandson of the first possessor of that name, who was sheriff-depute in 1627. The late Sir James Nasmyth of Posso has extended and finished the place, and numerous plantations, with as much taste and elegance as the Dutch mode of gardening by line and rule will admit of. He likewise kept it in high order, and by the superiority of his own external appearance, politeness, knowledge of the world by travel, and accomplishments, rendered both himself and his seat the models for imitation to the country where he lived. To have every thing about themselves and their houses as like to James Nasmyth and New Posso as possible was then the height of their ambition, about 1775, among the gentry of Tweeddale. A very well written letter, by this Sir J. Nasmyth, on the subject of botany, in answer to one from His Lordship at Blair Drummond, is preserved in Lord Woodhouselee's *Life of Lord Kaims*, and in compliment to him the birch called the *B*étula Nasmýth*ii* was so named. Many of the fine trees about New Posso have been lately cut down and sold, besides all those at Posso." The above is extracted from Dr. Pennycuick's *Works in Prose and Verse*, which were originally published in 1715, but of which an edition was published in 1814, with notes up to that year. New Posso is at present distinguished for its pine and larch plantations; and, according to Sir Thomas Dick Lauder, the first larches introduced into Scotland were planted at Dawick in the year 1725 (*Lauder's Gilpin's Forest Scenery*, vol. i. p. 148.); though this is doubtful, as will hereafter appear. Sir Thomas also mentions a locust tree at Dawick, which, at 3 ft. from the ground, measures 5 ft. 10 in. in girt. The present proprietor of Dawick, or New Posso, is Sir John Nasmyth, grandson of the Sir James celebrated by Dr. Pennicuick.

Holyrood House, where the Oriental plane was first planted in Scotland, is, as every one knows, the royal palace of Edinburgh. The Abbey of Holyrood, according to Maitland (*Hist. of Edin.*), was founded by King David I., in 1128, and consisted of a church and cloister. Maitland speaking of this church and cloister, says: — "After having stood 400 years in the fields, by themselves, King James V., about the year 1528, erected a house to reside in at his coming to Edinburgh, near the south-western corner of the church, with a circular turret at each angle, which is the present tower at the north-western corner of the palace; to which was added, by King Charles II., in the year 1674, all the other parts of the present magnificent royal mansion. The said King James, to accommodate himself with a park, inclosed a large quantity of ground in this neighbourhood with a stonern wall, about three miles in circumference, which probably is no where to be paralleled; for, instead of trees and thickets for cover, which other parks abound with, I could not, after the strictest search, discover one tree therein: in lieu whereof, it is supplied with huge rocks and vast declivities, which furnish the Edinburghers with the best of stones to pave their streets withal; as do the other parts of the said park yield good pasturage, and meadow grounds, with considerable spots of arable land." (*Maitland's Hist. of Edin.*, fol. 1753, p. 152.) Arnot, in his *History of Edinburgh*, published in 1779, speaking of this park, says: — " In the memory of people not long since dead [Arnot wrote about 1779], the level strip at the foot of the hill [Arthur's seat], which, from the Duke of York having delighted to walk in it, bears the name of ' The Duke's Walk,' was covered with tall oaks; but now there is hardly a single tree in its whole boundaries. Indeed, it is extremely doubtful if, except at the bottom, there ever were any trees on these hills, the height of the ground and barrenness of the soil being very unfavourable to their growth." (*Arnot's Hist. of Edin.*, 4to, Edin., 1779, p. 309.) It is clear, therefore, that the platanus, mentioned by Dr. Walker, was not planted in the park at Holyrood House: but we learn from the same authorities (Maitland and Arnot) that there were two walled gardens attached to the palace; and that " the royal garden at the northern end of the outer court " was " converted into a physic garden," and that it was under the same superintendence, and applied to the same purposes, as the physic garden at the North Loch. There can be no doubt, but it was in the physic garden adjoining the palace, that the platanus mentioned by Dr. Walker was planted; and the planter was probably Sutherland.

Bargally is to us by far the most interesting seat in Scotland, with respect to the introduction of foreign trees and shrubs, and though we have taken the greatest pains to ascertain from what circumstances its proprietor became so much attached to botanical pursuits, as to introduce in a remote part of Scotland, in the 17th century, trees then scarcely known even in its metropolis, and have been in a great measure successful; yet there is still some deficiency in the information we have obtained. Bargally is a small property situated in a glen, the sides of which are covered with natural wood, between Gatehouse in Kirkcudbrightshire, and Newton-Stewart. The proprietor's name was Andrew Heron; and he appears, by a family tomb in the grounds, to have died there in 1729. We have applied to about a dozen different persons in Kirkcudbrightshire, whom we deemed most likely to give us information respecting Bargally and its planter, and the following are extracts from the communications we have received, joined to what we have been able to glean from books. One of our correspondents informs us, " that Andrew Heron was a son of Heron of Heron of Kirauchtree (Caeruchtred), chief of that name. This Andrew built a cottage, in which he resided, at the upper extremity of the beautiful valley in which the present house of Bargally stands, and planted all the lower part of the valley. The splendid *Quércus Ìlex* and the noble beeches, which you saw in 1831, are but miserable relics of the magnificent forest which once rose between Bargally House and the river Palnure.

Andrew Heron married twice, and left a family. He, with one of his wives, was buried in a tomb which lies in front of Bargally House. The date inscribed on this tomb is 1729. Andrew's estate devolved, on his death, to his son, Dr. Andrew Heron; but he was involved in a lawsuit with the Kirauchtree family; and though it was decided in his favour, it ended in greatly injuring his fortune. In consequence of this, he sold Bargally to Hannay of Kirkdale, and retired to a cottage, where he died many years ago at a very advanced age." Another correspondent says, "I was born about two miles from Bargally, and recollect to have seen Dr. Heron, the son of the botanist, when I was very young. I communicated with several people who have lived their whole lifetime near Bargally, and are considerably older than I am, but they all replied that they knew nothing more about old Bargally than what I had stated to them. I recollected that the Herons of Heron [the estate of Heron is in Northumberland, see *A Genealogical History of the Ancient Family of Heron*, imp. 4to, part ii.] of Kirauchtree, and the Herons of Bargally, were originally from the same stock; and, as Lady Heron Maxwell of Springkell is the last of the lineal descendants of the Herons of Kirauchtree, I wrote to Her Ladyship, mentioning that you were engaged on a work that required some information about Andrew Heron of Bargally, and begging that she would tell me what she knew or had heard about him. I received a letter from Her Ladyship yesterday (April 6. 1835), giving me extracts from an old manuscript document in her possession relative to Andrew Heron of Bargally. I enclose a copy, and I hope it will give you all the information you require about that wonderful man. It appears that Andrew Heron was of no profession, simply the 'Laird of Bargally;' but he must have been a person who had travelled a good deal, to induce him to do so much at that early period.

"The old orchard and flower-garden at Bargally have been, to my personal knowledge, a grass field for forty years and upwards; but some of the fine variegated hollies, now large trees, still remain to mark the different divisions of the garden. About thirty years ago, when I was walking over the grass field, which was originally the garden at Bargally, in the month of August, I observed peering through the grass some crocus plants, both white and purple; this surprised me, for I had never seen an autumnal crocus. The gentleman to whom the property then belonged, was also astonished, saying that he had never observed them before. I cut up a few of the roots of the different kinds, with a portion of the turf, and carried them to St. Mary's Isle, and from these roots many plants have been propagated. There are still some curious trees and plants to be seen at Bargally, remaining to sound the praises of old Andrew Heron the botanist. Bargally was sold by the heirs of Andrew Heron to Mr. William Hannay, the brother of Sir Samuel Hannay of Kirkdale; he was scarce of cash, and cut down the wood of Bargally (including many of the fine trees that had been introduced and planted by Andrew Heron), in the year 1791. I purchased a portion of the trunk of a silver fir, and I made it into a meal chest; the side boards, the bottom, the ends, and top, or lid, of which chest are all out of one board. This chest is still in my possession, and in use; and it is in depth and breadth, after having been wrought, 2 ft. 2 in."—*W. M.*

Extract from an old manuscript in the possession of Lady Heron Maxwell of Springkell, relating to Andrew Heron of Bargally: — "Andrew Heron of Bargally was the second son of Andrew Heron of Heron, who settled the lands of Bargally upon him as his patrimony. In 1690 he went to reside at Bargally; in 1693 he built the great dyke for the garden and orchard; and, the next year, he began to collect and fill in a large number of trees, fruit, and flowers. His father died in 1695. In that year Andrew Heron employed Mr. Hawkins, an Englishman, to build the stone house. The stone was all got out of a quarry on the east side of the garden; it was finished, watertight and in order, in 1696. In 1697 and 1700 he built the pigeon house and the crews [farm offices]. Andrew Heron of Bargally married, secondly, the relict of John M'Kie of Larg, in April, 1708; and, having lived twenty-one years after his second marriage, hath improved the ground to great advantage, having enclosed all the low grounds, and built a new stone house, made large gardens, well stocked with all kinds of fine trees and rare fruits, both stone and core; some portions were stocked with fine flowers, and he had a green-house stocked with oranges, lemons, pomegranates, passion flowers, citron trees, oleanders, myrtles, and many others. The eldest son of Andrew Heron of Bargally was a captain in Lord Monk Kerr's regiment, and married the daughter of Mr. Vining, a rich merchant at Portsmouth. He left several sons and a daughter: John, bound apprentice to his brother in law, Mr. Reid, a considerable merchant; and Andrew, who is bound apprentice to a surgeon at Bath. He hath also Patrick, Charles, and Benjamin; and of daughters, Jane, who married Mr. Reid, to whom her grandfather, Mr. Vining, gave 3500*l*. in marriage portion, a large fortune at that time."

Lady Heron Maxwell added, from her own knowledge, the following additional information: — "The first Heron of Bargally was the uncle of my great-grandfather, Heron of Heron, who represented the stewartry of Kirkcudbright in parliament at different times; and I am now the last of the direct line of the family of Heron of Heron, and that family held large possessions in Galloway, from father to son, for upwards of 500 years. The only remaining known descendant of Heron of Bargally, in the male line, is Captain Basil Heron of the Royal Artillery, now (1835) on duty at Gibraltar; he married a daughter of Judge Mayne, in Ireland, and has three daughters; he is grandson of Dr. Heron, who sold Bargally, and great-grandson of Andrew Heron the botanist. The male heirs of all the branches of the family of Heron of Heron will be extinct on the death of Captain Basil Heron."

Andrew Heron corresponded with Bradley on gardening subjects; and from this correspondence it appears that he had a curious water-clock in his grounds, that he trained his pear trees in a particular manner, and that he cultivated in his fields what he calls the "true Roman cytisus." (See *Bradley's Treatise on Husbandry and Gardening*, 1726, vol. ii. p. 169.) Mr. Maxwell, writing about the same period to Mr. Hope of Rankeillor, says, "I have of late been with Mr. Heron of Bargally, in whose garden there is a great variety of curiosities to be observed. He is, in my opinion, the most learned and ingenious gentleman, in the article of gardening, I ever conversed with." (*Practical Husbandman*, p. 179.) "The want of money, that great enemy to old timber," another correspondent informs us, "compelled Mr. Hannay, the purchaser of Bargally from Dr. Andrew Heron, who was otherwise a gentleman of fine taste, to cut down a great many of the largest trees, particularly four that grew one at each corner of Heron's tomb."

We visited Bargally in August 24. 1831, and found a number of the trees planted by Andrew Heron still in existence. Having applied to the present proprietor, John Mackie, Esq., for the dimensions of some of these trees, the following is an extract from his letter, dated Bath, March 21. 1835:—"I have now received the measurement of some of the old trees at Bargally, which is as follows, viz.: the circumference of a beech (usually denominated the large beech), at 18 in. from the ground, is 18 ft., and it is upwards of 90 ft. in height. This tree is in the most perfect health, and when in full foliage is truly magnificent. The circumference of an evergreen oak in the garden, at 14 in. from the ground, is 12 ft. and it is above 60 ft. high: this tree is also in a very thriving state, and does not show the least tendency to decay. The circumference of a hop hornbeam (O´strya vulgàris), at 1 ft. from the ground, is 9 ft., and it is above 60 ft. high: this tree is particularly mentioned by Dr. Walker, as having been measured by him in 1780; it was then 4 ft. 1 in. in circumference at 4 feet from the ground, 60 ft. high, and considered the oldest and largest tree of the kind in Scotland. The circumference of a variegated sycamore is 12½ ft., and it is upwards of 70 ft. high. The girt of a sweet chestnut, at 18 in. from the ground, is 10 ft. 7 in., and it is above 80 ft. high. Mr. M'Nab, my factor, adds, 'Had I measured them at the surface of the ground, they would have been one third more, in consequence of the roots spreading so much as they do.' Mr. Hannay sold the property of Bargally to my father in 1792."

"It is recorded of Mr. Heron, that he went to visit a garden in the neighbourhood of London, and very much astonished the principal gardener, to whom he was a stranger, with the botanical knowledge he displayed; and the gardener having shown him an exotic, which he felt confident Mr. Heron had never seen, he exclaimed, on Mr. Heron's readily naming it, 'Then, Sir, you must either be the devil or Andrew Heron of Bargally;' thereby intimating that Mr. Heron was proverbial, in those days, as a botanist, even with those who had never seen him."

Dr. Walker, in his *Essays* (p. 32.), mentions several firs and pines at Bargally, of large dimensions, which no longer exist. A fir, he says, which was planted in 1697, measured, in 1780, 90 ft. in height. He states that the oldest and largest arbor vitæ in Scotland was at Bargally: it measured, in 1780, 5 ft. 4 in. in girt at 4 ft. from the ground, and was 40 ft. high. He also mentions a flowering ash (*O'rnus europæ`a*), which was cut down in 1780, and 7 ft. of the trunk quartered to make four axles to carts; it was a remarkably handsome tree, 6 ft. 3 in. in circumference at 4 ft. from the ground, and 50 ft. high. Dr. Walker mentions large evergreen oaks, horsechestnuts, and many other species, of extraordinary dimensions. The present proprietor is much attached to this beautiful place, takes the greatest care of the trees, and has lately repaired the tomb of their planter.

We took notes ourselves (in 1831) of several remarkable trees at Bargally, including a large lime tree and a number of beautiful variegated hollies from 20 ft. to 26 ft. in height, and with trunks from 15 in. to 2 ft. in diameter. Altogether the place is one of very great interest, not only on account of its venerable foreign trees and the tomb of Heron, but from the romantic beauty of the situation, and from the district in which it lies being one of the finest, in point of scenery, in the west of Scotland.

Dunkeld, where, it appears, the Weymouth Pine was first introduced into Scotland, was, in 1727, the property of James Murray, Duke of Athol; the friend and distant relative of John and Archibald, Dukes of Argyll. Dunkeld is celebrated for having been one of the first places where the larch was planted in Scotland; the plants of which, it is said, were sent from

London in pots in the year 1741. Sir Thomas Dick Lauder, as we have seen, however, says the larch was first planted in Scotland, at Sir James Nasmyth's, at Dawick, in 1725. The Rev. James Headrick, in his *Survey of Forfarshire*, gives another account of the introduction of the larch into Scotland. He says, "It is generally supposed that larches were first brought into Scotland by one of the Dukes of Athol; but I saw three larches of extraordinary size and age, in the garden near the mansion house of Lockhart of Lee, on the northern banks of the Clyde, a few miles below Lanark. The stems and branches were so much covered with lichens, that they hardly exhibited any signs of life or vegetation. The account I heard of them was, that they were brought there by the celebrated Lockhart of Lee (who had been ambassador from Cromwell to France), soon after the restoration of Charles II. (about 1660). After Cromwell's death, thinking himself unsafe on account of having served a usurper, he retired some time into the territories of Venice. He there observed the great use the Venetians made of larches in ship-building, in piles for buildings, in the construction of their houses, and for other purposes; and when he returned home he brought a number of larch plants in pots, with a view to try if they could be gradually made to endure the climate of Scotland. He nursed his plants in hot-houses, and in a green-house sheltered from the cold, until they all died, except the three alluded to; these, in desperation, he planted in the warmest and best sheltered part of his garden, where they attained an extraordinary height and girth." (*Headrick's Forfarshire*, p. 374.)

The estate of Dunkeld now contains the most extensive plantations of the larch in the island, spreading over several thousand acres. A copious and most valuable account of these plantations will be found in the *Transactions of the Highland Society*, vol. ix., and an abridgment of that account in our *Encyclopædia of Gardening*, § 6579. edit. 1835. Dunkeld has long been celebrated for its scenery. Dr. Clarke, the traveller, says, the scene that opens before you, after going through the pass, perhaps has not its parallel in Europe. "The grounds of the Duke of Athol," he continues, "I do not hesitate to pronounce without a rival." Gray, the author of the Elegy, was "overcome and almost lost" by the beauties of Dunkeld. Gilpin called it the "portal of the Highlands," and Dr. Macculloch has nearly filled a volume on the subject. The house at Dunkeld is a plain large building, erected in 1685, but it has long been in contemplation to remove it, and to build one of superior architectural pretensions. John Murray, the present Duke of Athol, has lately constructed a magnificent public bridge over the Tay at Dunkeld, government assisting His Grace with one sixth part of the expense. The bridge was constructed on dry land, and the course of the river was afterwards turned to it. It is greatly to the honour of this family, that for a century past their improvements, such as roadmaking, bridge-building, and planting, have been made more with a view to the general benefit of the country than to lodging themselves sumptuously.

New Hailes, near Musselburgh, was a seat of Baron Dalrymple, a celebrated lawyer and improver, and is now the property of Miss Dalrymple.

Arbigland, in Dumfriesshire, was the property of William Craik, Esq., a contemporary of Maxwell and of Fletcher of Saltoun, and one of the original members of the Society for the Improvement of Agriculture in Scotland. He was one of the first to study the works of Tull, and to adopt the drill system. He died in 1798, at the age of 95 years. We visited Arbigland in 1804, and again in 1806, and found the place still celebrated for its old silver firs. A life of this distinguished agriculturist will be found in the *Farmer's Magazine*, vol. xii. p. 145.

Loudon Castle, in Ayrshire, was one of the first places in the West of Scotland where foreign trees were planted. " John Earl of Loudon," Walker observes, " formed at Loudon Castle, in Ayrshire, the most extensive collection of willows, that has been made in this country, which he interspersed in his extensive plantations. Wherever he went during his long military services, he sent home every valuable sort of tree that he met with. All the willows he found cultivated in England, Ireland, Holland, Flanders, and Germany, as also in America and Portugal, where he commanded, were procured and sent to Loudon. (*Econ. Hist.*, *&c.*, p. 161.) In 1806, and again in 1831, we found a number of fine old trees at Loudon Castle; we recollect, in particular, robinias, gleditschias, American oaks, hickories, walnuts, taxodiums, acers, poplars, and a variety of others. Some are recorded by Dr. Walker as having been remarkably fine specimens in 1780.

Dalmahoy, near Edinburgh, is the property of the Earl of Morton, and there are still a few specimens of old trees there. Mount Steuart, the next place mentioned in the list, is situated in the Island of Bute, and was built in 1718 by James Earl of Bute, father of the celebrated earl of that name, who was minister to George III. The plantations there, according to Dr. Walker, were begun in the same year. Speaking of them in 1780, he says, " They are equal, if not superior, to those of the same age in Ayrshire and Renfrewshire. The Oriental plane grows here almost like a willow; is never hurt in winter, and forms a fine dressed shady tree." The Marquess of Bute's family have planted from 200,000 to 300,000 trees every year since the beginning of the present century. The place contains many remarkably fine specimens, which will be severally noticed in the course of this work.

Hopetoun House, the property of the Earl of Hopetoun, is still celebrated for its cedars. According to a letter, dated November, 1834, which we received from Mr. Smith, the gardener there, the cedars alluded to by Dr. Walker were brought from London by Archibald Duke of Argyll, and a number of other exotic trees, such as tulip trees, evergreens, oaks, &c., appear to have been planted about the same time. It is remarkable, Mr. Smith observes, that these cedar trees are the fastest-growing trees on the estate. The largest, in 1834, measured nearly 15½ ft. in girt, at a foot from the ground, and was 68 ft. high. The silver fir there was 90 ft. high; the tulip tree 60 ft. high; the Carolina or evergreen birdcherry, mentioned by Dr. Walker, 70 ft. high; the sweet chestnut 75 ft. high; the arbor vitæ 35 ft. high; the common holly 44 ft. high; and the common yew 28 ft. high. On the whole, Hopetoun House is one of the most celebrated places for foreign trees and shrubs in Scotland. (See *Encyc. of Gard.*, § 1225. edit. 1835.)

Carmichael was, we believe, situated in Clydesdale, and belonged to the Earl of Hyndford. Mellerstane, in Berwickshire, was the seat of George Baillie of Jerviswood. The mansion is magnificent, and the grounds extensive. Elliock, in Dumfriesshire, belongs to the Veitch family, some of whom were formerly Lords of Session. It has very extensive plantations.

By Leith, where the balsam poplar was first planted, we find, from another passage in Dr. Walker's works, was meant a nursery in Leith Walk; in all probability that of Mr. Richmond, who was the first to establish a nursery there, which, about 1780, merged in that of Messrs. Dickson and Co.

It is observed by Dr. Walker, that most of the foregoing trees were only planted in gardens and pleasure-grounds as objects of rarity or beauty. Planting on a large scale, for profit, was chiefly performed, as may readily be imagined, with indigenous trees. The father of this description of planting in Scotland was, according to the same undoubted authority, Thomas Earl of Haddington, who began to plant Tyningham, near Dunbar, in the year 1705. He enclosed 1000 acres, called Binning Wood, and wrote a *Treatise on Forest Trees*, which was printed in 1733. The earl died at New Hailes near Edinburgh in 1735, and was succeeded by his grandson, to whom he had addressed the letters which compose the treatise. The earl informs us in his treatise, that when he came to live at Tyningham, in the year 1700, there were not above fourteen acres set with trees. The earl's grandfather, he tells us, after the civil wars in the time of Charles I. were over, "tried to raise some trees," and for that purpose planted two rows round the house and gardens. The author of the treatise tells us that he was "fond of dogs and horses, and had no manner of inclination to plant, till he was obliged to form some enclosures for grazing his horses, as he found the purchase of hay very expensive." After he began, his lady, who "was a great lover of planting, encouraged him to go on, and at last asked leave to go about it herself." The first Marquess of Tweeddale, Lord Rankeilor, Sir William Bruce, his father, and some others, he says, had planted a great deal; yet, he adds, "I will be bold to say, that planting was not well understood in this country till this century began. I think it was the late Earl of Mar, that first introduced the wilderness way of planting amongst us; and very much improved the taste of our gentlemen, who very soon followed his example." (p. 3.) What the earl means by a wilderness, we afterwards learn, is a plantation with straight walks cut through it, in the geometrical style of landscape-gardening; in England, a wilderness plantation is generally understood to be one in which the walks are in irregular directions.

It does not appear, from this treatise, that the earl planted many trees of foreign origin in his woods; but, from the dimensions of some arbor vitæs, evergreen oaks, chestnuts, &c., there can be little doubt that he did not lose sight of such trees in his ornamental plantations near the house. Sang, in the *Planter's Kalendar* (2d edit. p. 551.), mentions a silver fir as having been planted in Binning Wood in 1705. This wood, he says, "reflects great honour on the memory of the *lady* who planted it;" meaning, no doubt, the Countess of Haddington above mentioned, who is said to have sold her jewels, to enable her to plant Binning Wood. The holly hedges at Tyningham planted by this earl and his successor are unquestionably the finest in Britain. Some notices respecting these hedges are given in the *London Horticultural Society's Transactions*, vol. viii., and in the *Gardener's Magazine*, vol. ii. p. 184. There are in all 2952 yards of holly hedge, in different lengths, of different heights of from 10 to 25 ft., and of widths from 9 to 13 ft.: they are, with the exception of one, regularly clipped every April. The largest single holly at Tyningham, according to the dimensions sent us in January, 1835, was 42 ft. high. The hedges were for the most part planted in 1712. Wight of Ormiston, in his *General Survey of the Agriculture of Scotland*, speaking of Tyningham in 1768, says, these hedges, and the abundance of evergreens, give the place the appearance of summer in the midst of winter.

The great promoter of the planting of foreign trees and shrubs in Scotland, according to Dr. Walker, was Archibald Duke of Argyll; unquestionably, also, as we have seen (p. 57.), the greatest promoter of this kind of planting, in England. The duke communicated this taste to a number of his intimate friends, both in England and Scotland. Among these, in the latter country, Dr. Walker mentions the Duke of Athol, the Earls of Bute, of Loudon, of Hyndford, and of Panmure; Sir James Nasmyth, Mr. Fletcher of Saltoun, Sir Archibald Grant, and others. By the exertions of these gentlemen, planting became very general in Scotland between the years 1730 and 1760. (*Walker's Hebrides*, vol. i. p. 210.)

Sir Archibald Grant began to plant in 1719. The following is an extract taken from a commonplace book kept by this gentleman, and published in the *Gardener's Magazine*, vol. xi. p. 48.: — "In 1715," Sir Archibald says, "by the indulgence of a very worthy father, I was allowed, though then very young, to begin to enclose and plant, and provide and prepare nurseries. At that time there was not one acre on the whole estate enclosed, nor any timber upon it but a few elms, sycamore, and ash, about a small kitchen-garden adjoining to the house, and some straggling trees at some of the farmyards, with a small copsewood, not enclosed, and dwarfish, and browsed by sheep and cattle."

It is probable that most of the foreign trees and shrubs that were introduced into Scotland previously to the middle of the 18th century, were raised from seeds in the different localities. There could have been few, if any, public tree nurseries in Scotland previously to that period; and the carriage of trees from England must have been extremely tedious and expensive. The Earl of Haddington was, in all probability, the originator of nurseries in Scotland, as well as the father of artificial plantations in that country, on a large scale for profit. John Reid, the author of the *Scots Gardener*, published in 1683, mentions Hugh Wood, gardener at Hamilton, dealing in fruit trees and numerous other garden articles, whether English, Dutch, or Scotch, but he makes no mention of forest trees. Sutherland's *Hortus Medicus Edinburgensis*, published in 1683, is stated in the titlepage to be sold by "Mr. Henry Ferguson, seed merchant, at the head of Black Friar's Wynd." That there were plants, trees, &c., sold by the gardeners in Scotland, is obvious from the following advertisement, dated 1721:—"There is to be sold at John Weir's, gardener at Heriot's Hospital, and at James Weir's, son to the said John, his house at Tolcross, at the end of the West Port, all sorts of garden seeds, fruit and barren trees, and evergreens, as also flowers of the best kinds." Archibald Eagle of Edinburgh was seedsman to the Society of Improvers of Agriculture in Scotland in 1743; and, the Society having been established in 1723, this firm, now Eagle and Henderson, may date from the latter period. They had, however, no nursery for at least half a century afterwards. Dr. Walker seems to indicate that public nurseries for forest trees began to be established in Scotland between the years 1730 and

1760. The most considerable of these, he says, was that of old Mr. Dickson, at Hassendeanburn, in Teviotdale. This nursery, we are informed by the present proprietors, Messrs. Archibald Dickson and Co., was founded in 1729. From it sprang, in 1767, the nursery of Messrs. Dickson, now Dickson and Turnbull, at Perth; and, subsequently, another brother of the Hassendeanburn family, Walter Dickson, began the house of Dickson and Co. of Edinburgh, now Dicksons and Shankley, in connexion with Mr. James Dickson, who was no relative of the family. It thus appears, that Mr. Robert Dickson of Hassendeanburn was the father of commercial forest tree nurseries in Scotland. The three nurseries established by him and his two brothers being still the most extensive in that country. Mr. Archibald Dickson, the present chief of the firm at Hassendeanburn and at Hawick, to whom we are indebted for the above information, states, in his letter of March 24. 1835, that he is now bringing up some of the fifth generation to the trade. The next considerable public establishment of this kind was that of Messrs. Anderson and Leslie of Broughton Park, Edinburgh; and contemporary with this were those of Mr. Richmond of Leith Walk, of Gordon of Fountainbridge, of Boutcher of Comely Bank, of Messrs. Austen of Glasgow, of Thomas Leslie and Co. of Dundee, of Reid of Aberdeen, of Sampson of Kilmarnock, and a number of others. The most scientific nurseryman in Scotland, during the 18th century, appears to have been Mr. Boutcher. According to an authority quoted by Sir Henry Steuart, Mr. Boutcher was "the honestest and most judicious nurseryman Scotland ever had." He made an attempt to improve Scottish arboriculture about 1760; but, according to Sir Henry, he was "undervalued by the ignorance of his age, and suffered to languish unsupported for years at Comely Garden, and to die at last in obscurity and indigence." (*Planter's Guide*, 2d edit. p. 399.) Boutcher's *Treatise on raising Forest Trees* was the first work on the subject of its time, and Scottish nurserymen have only produced one work on planting superior to it; namely, the edition of *Nicol's Planter's Kalendar*, which was edited, and in great part rewritten, by Mr. Sang of Kirkaldy.

The indigenous trees of Ireland are the same as those of Britain, though such as consider the box, the true service, and the common English elm, truly indigenous to England will not accord with this, as these trees are never found in an apparently wild state in Ireland. Those, on the contrary, who consider the *A*rbutus and *E*rìca mediterrànea indigenous to Ireland find them wanting in England, and may hence consider that Ireland has more native trees and shrubs than this country. There can be very little doubt that the common yew is an indigenous tree in Ireland, for trunks of it, of large dimensions, are frequently dug up from bogs. Mr. Mackay has sent us an account received by him from Mr. Charles Hamilton, Honorary Secretary to the Horticultural Society of Ireland, of one dug up in Queen's County, the rings of annual increase of which indicated a growth of 545 years. The greatest diameter of the trunk of this tree was only 19 in.! The growth appeared to be very slow during the last 300 years, for near the circumference there were about 100 rings within the space of an inch. The root and bark were quite sound, and the stem from which the section was taken was about 12 ft. long, and of tolerably even thickness throughout. Mr. Mackay says that he saw a yew tree in the Island of Innisfallen, on the lower lake of Killarney, which must have been as old as that mentioned by Mr. Hamilton; and which, when he measured it about thirty years ago, was nearly double the dimensions. If the Irish yew be a distinct species, Ireland may claim this fine tree as her own. Our own opinion is, that this yew is nothing more than a variety of the common species. The largest specimens of this tree, the *Táxus hibérnica* of Mackay, are in a garden at the village of Cumber, near Belfast: they are about 25 ft. in height, and have, at a distance, the appearance of cypresses. They are supposed to have been planted about 50 years, but their history is unknown.

From information procured for us through the kindness of Lord Viscount Ferrard, we find that there is an upright or Irish yew in a garden at Mayland, near Antrim, 130 years old, 25 ft. high; the diameter of the space covered by the branches, 10 ft.; and the diameter of the trunk close to the ground, 3 ft. This tree, and three others in the town, are supposed to have been planted by the Refords, when they first settled in Mayland in 1712. "An upright yew, probably the parent of the above trees, and of all others in this country, grew in Mr. Ferguson's garden. It was cut down about 16 or 17 years ago, by the late Mr. Ledlie; and his son, now in Antrim, has several pieces of furniture which were made from it. In the panel 1 ft. broad, of one of these a wardrobe, I can count about 100 annual concentric layers, and as the tree, it is said, was 2 ft. in diameter, this would give 200 years, and 40 or 50 years more might probaby be added for the time when scarcely any enlargement took place." — *L. F. Antrim Castle, March* 24. 1835.

If the arbutus be not indigenous to Ireland, it is at least completely naturalised there, being found, as the yew is in England, in places completely inaccessible to a planter, and where the seeds must have been carried by birds. One of the largest specimens stood in Rough Island, on the lower lake of Killarney, in 1805; it was measured in that year by Mr. Mackay, and the trunk found, at a foot from the ground, to be 9½ ft. in girt. It formed rather an immense bush than a tree, and consisted of four limbs, the branches of which extended from the root to the length of 36 ft. There is one equally large at Powerscourt, Wicklow, which was planted about 90 years ago; and one, of similar size and age, at Newton Mount Kennedy, was blown down in 1804. The *E*rica mediterrànea was found growing, by Mr. Mackay, in Cunnemara, on the western coast. (See *Gard. Mag.*, vol. vii. p. 230. and the forthcoming *Irish Flora* of Mr. Mackay.) *E*rìca mediterrànea has not only been found on the side of Errisbeg mountain, covering a space of three acres, but in the wild district of Erris, in the county of Mayo, in the greatest profusion. It is a distinct variety from the plant of the same name in gardens, and is considered by Dr. Greville to be the same as that found in the Western Pyrenees.

We have not been able to procure much information respecting *the dates of the introduction of foreign trees and shrubs into Ireland*, though we have looked over numerous books, and entered into an extensive correspondence for that purpose. On the whole, there appears to have been comparatively few foreign trees planted in Ireland previously to the middle of the 18th century; except fruit trees, and probably some ornamental shrubs, as the arbutus, &c., in the gardens of the monastic institutions, and other religious establishments.

A work, entitled *Botanologia Universalis Hibernica*, by J. K'Eogh, A. B., chaplain to Lord Kingston, published in 1735, appears to contain the names of all the foreign trees and shrubs that were in Ireland at that time.

In the preface to this work, the author says: "When I was writing on this subject, I had the advantage daily of viewing the gardens belonging to the Rt. Hon. James Lord Baron of Kingston, wherein were contained near 200 different species of herbs and trees. I was not acquainted with any garden which could show so many. This was no small advantage or conveniency to forward this undertaking." The trees and shrubs enumerated in K'Eogh's work are the following: —

"Abele, about mansion-houses, for shelter; arbutus, wild in Kerry, and is manured in gardens; great bay; box; chestnut, frequently planted in gardens and parks; cypress tree, in gardens, for its pleasant verdure; fig tree; jasminum, planted in gardens; lemon tree, to be seen in the gardens of Mitchelstown, belonging to the Rt. Hon. Lord Kingston; medlar tree, in gardens; myrtle tree, it grows in my Lord Kingston's greenhouse, Mitchelstown, and there are also hedges of it in the Lord Inchiquin's gardens at Rostillon; mulberry tree, in gardens.

"Orange trees; of late years they had been transplanted here, which now, by the industry and cultivation of curious gentlemen, are in some gardens brought to perfection. I have seen about seventy or eighty oranges taken off one tree in the Rt. Hon. the Lord Kingston's garden at Mitchelstown, as good as any I have seen brought hither from Spain or the West Indies: so you see what a prolific and fertile soil we live in, where the most exotic plants might, by a little care and industry, flourish.

"Peach tree, in gardens; pear tree; pine tree; rose; savin, in gardens, wild in one of the islands of Lough Lane, Kerry; colutea, in gardens, I have seen it flourishing in Mr. Robert Fennell's garden near Mitchelstown; abrotanum; tamarisk, in gardens; vine tree, in some gardens: walnut tree, in walks, parks, and fields."

A nobleman, whose father was one of the greatest planters in Ireland, to whom we were recommended to apply for authentic information, sent us the following statement: — "The gardens of greatest interest in Ireland, as having been the first to introduce exotic trees and shrubs, and as having contained the greatest variety, were those of Lord Moira, at Moira, in Down [noticed p. 48.]; and of Lord Clanbrassill, at Dundalk, in Louth; and Tollymore Park, in Down. Sir Robert Bateson, M. P. for the county of Derry, is proprietor of Moira; and the Earl of Roden, of Dundalk and Tollymore. Moira is dismantled, though some of the trees and shrubs may possibly remain. Dundalk is also dismantled, but Tollymore is kept up. Lord Farnham introduced many foreign trees and shrubs to Newton Barry, and may have lately done so at Farnham. (*February*, 1835.)"

Mr. Mackay, the very intelligent curator of the Trinity College Botanic Garden, Dublin, in a letter dated February, 1835, says: — "The late Lord Oriel and the late Earl of Clanbrassill were the persons who introduced by far the greater number of trees into Ireland during the last century. I think they commenced doing so about 1770, or perhaps a few years before that period; the former, Lord Oriel (then Mr. Foster), planted them in his demesne at Collon, in the county of Louth; and the latter, in his fine demesne at Tollymore Park, in the county of Down." Our friend Mr. Murphy, in the *Irish Farm. and Gard. Mag.* (vol. ii. p. 89.), states that Lord Viscount Ferrard, the son of Lord Oriel, possesses more foreign trees and shrubs than any other individual in Ireland. Mr. Mackay also states that John Templeton, Esq., about the same time as the two noblemen above mentioned, introduced many fine American trees and shrubs into his grounds at Malone, near Belfast, where the same family still reside.

The greatest number of species planted in the 18th century, in any one demesne, is at Oriel Temple, and many of these appear to have grown with very great rapidity. A tulip tree, 40 years planted, has attained the height of 43 ft.; an *A*cer rùbrum, of the same age, 44 ft.; a Pàv*ia* flàva, of the same age, 31 ft.; a *Sophòra* japónica, 50 years planted, 35 ft.; an Aristotèl*ia Mácqui*, 20 years planted, upwards of 16 ft., though on a strong clayey soil; the *A*'rbutus *A*ndráchne seems to grow at the rate of 1 ft. a year; the Portugal laurel, 50 years planted, has attained the height of 35 ft., and its branches cover a space the diameter of which is 45 ft.; the common laurel, of the same age, is 40 ft. high, and its branches cover a space of 36 ft. in diameter; *P*ópulus canadénsis, 40 years planted, is 72 ft. high: *A*'lnus laciniàta, 34 years planted, is 44 ft. high; *Q*uércus palústris, 50 years planted, is 41 ft. high; and *Q*. fastigiàta, of the same age, is 54 ft. high; *Q*. exoniénsis, 60 years planted, is 67 ft. high; and *Q*. *Æ*'gilops, of the same age, is 55 ft. high; the purple beech, 55 years planted, is 54 ft. high; and that beautiful variety of the common beech, *F*àgus sylvática péndula, at 35 years' growth, is 33 ft. high; the arbor vitæ, 30 years planted, is 30 ft. high; the *P*ìnus *Cémbra*, of the same age, 34 ft. high; the hemlock spruce, 35 years planted, 32 ft. high; the Cunninghàm*ia* lanceolàta, in 12 years, 7 ft. high; the *L*àrix péndula, in 55 years, 62 ft.; the cedar of Lebanon, in 35 years, 33 ft.; and that singularly picturesque, and yet elegant, tree, the cedar of Goa (*C*upréssus lusitánica), 32 ft. high, the branches covering a space of 35 ft. in diameter, in 24 years. This cedar was originally brought from the Portuguese settlement at Goa, in the East Indies, to Portugal; and the seeds were brought from that country to Ireland by Lord Ferrard in 1809; and, being sown, produced abundantly. The plants were first kept in a greenhouse; but, on some of them being transplanted into the open air from want of room, they were found to grow so vigorously, that in three seasons any one branch surpassed in size the entire plant contained in the green-house. A *R*hododéndron pónticum, at 60 years of age, is 16 ft. high, and the diameter of the space covered by its branches is 38 ft. There was a tree pæony here of extraordinary dimensions. It was 12 ft. high, and was protected during winter by a glass case. About the year 1827 this case was left off, to try to inure the plant to stand without covering, but the winter unfortunately proving severe, it was killed.

At Antrim Castle, also the seat of Lord Ferrard, are some remarkably fine trees and shrubs. There is a yew tree, estimated at 200 years old, which is 35 ft. high; the diameter of the trunk, at 1 ft. from the ground, is 2 ft. 9 in.; and the diameter of the space covered by its branches, 33 ft. There is a Portugal laurel 150 years planted, which is only 18 ft. high: but the diameter of its trunk, at 1 ft. from the ground, is 3 ft. 7 in.; and that of the space covered by its branches, 36 ft. There are an evergreen oak 100 years old and 25 ft. high; and a variegated holly of the same age, 20 ft. high. There are a juniper 18 ft., at 90 years of age; and an arbor vitæ 24 ft. high, at the same age.

At Tollymore Park, in the county of Down, planted by the Earl of Clanbrassill, and now the seat of the Earl of Roden, there are some very fine trees. The soil and situation, the first ridge of the Mourne Mountains, appear to be particularly suited to the larch and silver fir. From a considerable number, of almost equal magnitude, measured for us by desire of Lord Roden, we select one silver fir, planted 60 years ago, which is 84 ft. high; the diameter, at 1 ft. from the ground, 5 ft. 2 in.; at 10 ft., 4 ft.; and at 24 ft., 3 ft. 3 in.; it is beautifully and evenly clothed with branches, the lower tiers of which are pendent to the ground, and the circumference of the space which they cover is 160 ft. The larch of Tollymore Park is in much estimation for its great tenacity, and it supplies masts of from 50 ft. to 60 ft. in length. As a selection from a great number, we take one tree, which, at 80 years of age, is 84 ft. high; the diameter, at 1 ft. from the ground, 2 ft. 8 in.; and 10 ft. from the ground, 2 ft. 3 in.: another tree, at 60 years of age, is 66 ft. high; the diameter, at 1 ft. from the ground, being 3 ft.; and at 10 ft., 2 ft. 3 in. Among numerous fine specimens of shrubs introduced by the late Lord Clanbrassill, there is a *R*hododéndron pónticum, which, at 50 years of age, is 10 ft. high, and covers, with its unbroken mass of foliage, a space the circumference of which is 90 ft. The larch at Tollymore Park is grown on the side of a steep hill facing the north, on a stiff gravelly substratum, which corresponds with the natural situation in which the larch is found in Switzerland, as stated by Decandolle in the *Quarterly Journal of Agriculture*, vol. v. p. 403.; and with the situations in the neighbourhood of Dunkeld, where the best larch is grown by the Duke of Athol, as stated in the account of these plantations in the *Transactions of the Highland Society of Scotland*, vol. xi. p. 165. to p. 219. Monteath, the Scotch forester, we are informed by Lord Roden, and also by another correspondent, considers the Tollymore larch as very superior in quality to the generality of the Scotch or Welch larch. Lord Roden states that he uses it for all purposes whatever, and that for forming utensils it is found an excellent substitute for ash. The trees are generally felled at the age of 70 years. The rhododendrons are scattered through the woods; they are found fully as hardy as the common laurel, and many of them have attained a large size. There are many specimens of *A*bies excélsa var. Clanbrassill*iàna*, but none of them remarkable.

At Dundalk, also the property of the Earl of Roden, there is a Magnòl*ia* acuminàta 27 ft. high; the circumference of the stem, at 1 ft. from the ground, is 5 ft.; and at 3 ft. from the ground, 4 ft. 6 in.; and the branches cover a space measuring 84 ft. in circumference. There is an oak in the park 60 ft. high; the circumference of the trunk, at 1 ft. from the ground, is 15 ft.;

at 5 ft., 10 ft; and at 19 ft., 10 ft.; and the space covered by its branches is nearly 355 ft. in circumference.

At Cypress Grove, near Dublin, Mr. Mackay informs us, the Dowager Lady Clanbrassill resided from 1770 to 1790, during which period she received a number of foreign trees and shrubs from her son. The dimensions of many of these, the present gardener, Mr. Edward Carrol, has obligingly sent us, at the request of Mr. Mackay. The collection is numerous, and some of the specimens have attained a considerable size. Robín*ia* Pseùd-*A*càcia is 60 ft. high; *L*aúrus nóbilis, 30 ft.; *J*ùglans règia, 70 ft.; *C*árpinus *B*étulus, 90 ft.; *Q*uércus *C*érris, 70 ft.; and *J*uníperus virginiàna, 40 ft., &c.

At Moira, according to information kindly sent us by the present proprietor, Sir Robert Bateson, there appear to be very few, if any, of the trees existing that were planted by Sir Arthur Rawdon, about the end of the seventeenth century (see p. 48.). A number are of considerable size, but their ages are unknown; among these are, a lime tree, which is 85 ft. high, the diameter of the space covered by its branches is 60 ft., and that of its trunk, at 1 ft. from the ground, 4 ft.; a beech, 110 ft. high, the diameter of the space covered by its branches being 80 ft., and that of its trunk, at 1 ft. from the ground, 4 ft. 4 in.; a variegated platanus, 50 ft. high; and a *P*látanus *a*cerifòlia, 70 ft. high; *Q*uércus *I*'lex, 45 ft. high, with a trunk 4 ft. in diameter at 1 ft. from the ground, and the diameter of the space covered by its branches, 35 ft.; a broad-leaved elm, 90 ft. high, the trunk 3 ft. 10 in. in diameter, and the diameter of the space covered by its branches, 60 ft.; Gledítsch*ia* triacánthos, 55 ft. high; a sweet chestnut, 40 ft. high; the silver fir, 90 ft. high; and the common yew tree, 45 ft. high, with a trunk 4 ft. in diameter, and the space covered by its branches being 39 ft. in diameter.

The late John Templeton, Esq., A.L.S., was a scientific botanist, as well as a skilful cultivator; he was the author of several articles on botany, and on other branches of natural history, which appeared in different works, and of some valuable papers on acclimatising plants, published in the *Transactions of the Royal Irish Academy*. A very interesting account of his life, by Dr. Drummond, will be found in our *Magazine of Natural History*, vol. i. p. 403. It appears that Mr. Templeton had a country house at Malone, near Belfast, to which he gave the name of Crann-more, that is, Great tree, in honour of the very fine chestnut trees which are in front of the house, and which were probably planted in the 17th century: it had before been called Orange Grove. Mr. Templeton began to cultivate flowers in 1786, and he laid out an experimental garden in 1793. At the time of his death, which happened in 1826, there were, says his biographer, " collected in this garden, from various parts of the world, many rare and useful plants, which he endeavoured to naturalise in this climate, by placing them in a soil and situation as near as possible to that to which they had been accustomed. By this means there is now growing in his garden in the open air, a wonderful and curious collection of plants from India, China, North and South America, Siberia, &c., which were formerly kept in the green-house, or even hot-house. All the trees at Cranmore, except the chestnuts and oaks, were raised from seed planted by Mr. Templeton himself, and so great a variety of the natives of the forest, has perhaps never before been collected in so small a place." (*Mag. Nat. H.*, i. 405.) Mr. Templeton corresponded with all the principal botanists of his time, and discovered several new plants in Ireland; among others the *R*òsa hibérnica, and *O*robánche rùbra. The dimensions of some of the more remarkable trees and shrubs at Cranmore have been kindly sent to us by Mrs. Templeton. Among these are, a sweet chestnut, 60 ft. high, with a trunk 15 ft. in circumference at one foot from the ground (the tree from which the place takes its name); *P*ìnus *Cémbra*, 24 ft. high; *P*ìnus Banksi*àna*, 17 ft. high; *P*ìnus *Mùgho*, 11 ft. high; and *A*'bies canadénsis, 16 ft. high. There are, an *A*'cer rùbrum, 30 ft. high; a liquidambar, 15 ft. high; a Swedish juniper, 18 ft. high; and a *P*tèlea trifoliàta, 26 ft. high. The first *R*hododéndron máximum introduced into Ireland is supposed to have been one planted here, which attained a very great size, but died about three years ago. There is one still existing, which is 9½ ft. high, and the circumference of the space covered by its branches is 37 ft.

In the *History of the County of Down*, published in 1745 (p. 60.), speaking of Bangor, the author says, " the gardens are filled with noble evergreens of a great size, cut in various shapes, among which is an evergreen oak, which, though it grows as a shrub in most other places, is here a *tall* tree, and of considerable girth." At the same place there is now (1835) a very large mulberry tree, which is very uncommon in Ireland. There was also one about the same size at Castle Ward. At Spring Vale, in the same county, is a very large cork tree, which is now in a state of decay.

At Castle Ward, the seat of Viscount Bangor, is a flowering ash (*O*'rnus europæ'a), 30 ft, high, and 6 ft. 4 in. in girt at 7 ft. from the ground; it flowers frequently, but not every year. There are, also, an evergreen oak, with a trunk 9 ft. 6 in. in girt at 2 ft. from the ground, and 8 ft. 4 in. at 10 ft. from the ground; an arbutus, 5 ft. in girt at 2 ft. from the ground; and a pinaster, 60 ft. high, and 8 ft. 10 in. in circumference at 6 ft. from the ground: these trees are all close to a small bay or arm of the sea. There are, also, a silver fir, 66 ft. high, 8 ft. 5 in. in girt, which it carries up to 30 ft.; a cedar of Lebanon, 50 ft. high, 5 ft. 3 in. in girt at 8 ft. from the ground; and a sweet chestnut, 10 ft. 3 in. in girt at 3 ft. from the ground. There is a myrtle hedge here at least 120 years old, which grows vigorously. The shrubberies and ornamental planting at Castle Ward were made by Mrs. Ward, the wife of Judge Ward, between 1710 and 1759; and some before that period, as there were some tulip trees of large size cut down some years ago, supposed to be 120 years old. — *J. M. R.*

To Mr. Carrol, gardener at Cypress Grove, we are indebted for the measurements of several trees at Howth Castle, near Dublin, the seat of the Earl of Howth. It appears that some foreign trees were planted here even in the 16th century, and particularly an *U*'lmus campéstris, which is estimated to be 250 years old. It is only 50 ft. high, but the diameter of the trunk, at 1 ft. from the ground, is 4 ft. 6 in. There is a walnut tree here, considered to be 200 years planted; a *T*ámarix gállica, 100 years; and a tulip tree, 60 years. The tamarisk has a stem 1 ft. 10 in. in diameter at 1 ft. from the ground; it is 20 ft. high, and the diameter of the space covered by its branches is 22 ft. We should suppose it must be the finest specimen of this shrub in existence. The common myrtle stands the open air at Howth, protected by a wall; there is a specimen which has been planted thirty years, which has attained a stem 4 in. in diameter at 1 ft. from the ground.

At Charleville Forest, in King's County, a place where we had the pleasure of staying two or three days in 1811, when consulted professionally by the Earl of Charleville, there is a common lime, supposed to have been planted about seventy years, which is now (1835) 110 ft. high; an *A*'cer *p*latanöìdes, which at 60 years is 68 ft. high; a Pàv*ia* rùbra, 76 ft. high; a common holly, 45 ft. high; a Robín*ia* Pseùd-*A*càcia, 50 ft. high; a *C*ratæ`gus *Azaròlus*, 40 ft. high; an *U*'lmus campéstris, 85 ft. high; a *P*ópulus álba, 120 ft. high; a *Q*uércus pedunculàta, planted 60 years, which is 110 ft. high; a *F*àgus sylvática of the same age and height; a sweet chestnut, 45 years planted, which has attained the height of 85 ft.; a yew tree, 45 years planted, which has attained the height of 50 ft.; an arbor vitæ, planted 25 years, and 20 ft. high; and a *L*àrix microcárpa, 45 years planted, and 94 ft. high. On the whole, there is an excellent collection of trees at Charleville, and they appear to have made extraordinary progress.

At Shelton Abbey, the Earl of Wicklow's, in the county of Wicklow, there are a few remarkably fine specimens of foreign trees and shrubs. A tulip tree, 50 years planted, is 60 ft. high, flowering beautifully every year; a Robín*ia* Pseùd-*A*càcia, of the same age, is 65 ft. high, with a trunk 2½ ft. in diameter at 1 ft. from the ground; a Portugal laurel, 40 years planted, is 35 ft. high, has a stem 2½ ft. in diameter at 1 ft. from the ground, and the diameter of the space covered by its branches is 39 ft.; a common laurel, 90 years planted, is 45 ft. high, the diameter of its trunk, at 1 ft. from the ground, is 6 ft. [probably from the number of diverging branches proceeding direct from the crown of the root], and the diameter of the space its branches cover is 101 ft. ! A *L*aúrus nóbilis, 16 years planted, is 34 ft. high, and the diameter of the space covered by its branches is 25 ft.; *C*upréssus sempervìrens, 50 years planted, is 59 ft. high.

At Castle Freke, in the county of Cork, the seat of Lord Carberry, there appear to be some fine specimens. *R*hododéndron pónticum is 8 ft. high, and the branches cover a space 76 ft. in circumference; the *Q*uércus *I*'lex, 26 years planted, 36 ft. high; the Lucombe oak, of the same age, 39 ft. high; and the sweet chestnut, 44 ft. high; Aristotèl*ia Mácqui*, on light soil over gravel, forms a handsome tree, 26 ft. high, with a trunk 8½ in. in diameter at 1 ft. from the ground.

At Florence Court, the residence of the Earl of Enniskillen, there is a good collection of trees, the dimensions of many of which have been sent us by the gardener there, Mr. Young. The tulip tree, at 38 years' growth, is 35 ft. high; *A*'cer montànum, at 38 years' growth, 50 ft. high; the Portugal laurel, at 40 years' growth, is 32 ft. high, and its branches cover a space 22 ft. in diameter; *C*órnus flórida, 38 years planted, is 16 ft. high, and the branches cover a space of 20 ft. in diameter; *S*ambùcus nìgra, at 40 years of age, is 50 ft. high; the walnut, at 50 years of age, is 40 ft. high; and the Canadian poplar, at 30 years' growth, 70 ft. high; the scarlet oak, 40 years planted, is 70 ft. high; and different varieties of *Q*uércus *C*érris, all planted 38 years, are also 70 ft. high; the common yew, at 80 years of age, is 30 ft. high, and its branches cover a space of 30 ft. in diameter; and the Irish yew, sometimes called the Florence Court yew, the original plant being still in existence in the grounds, has attained the height of 26 ft.

At Killrudery House, in the county of Wicklow, the seat of the Earl of Meath, are some remarkably fine evergreen oaks. One of these, by no means larger than the rest, measured for us by Mr. Niven in February, 1835, was 60 ft. high, with a trunk 11½ ft. in circumference at 1 ft. from the ground.

The oldest cedars of Lebanon in Ireland are said to be at Mount Anville Hill, the seat of Counsellor West, K.C. These cedars, we are informed, were brought direct from Mount Lebanon, by an ancestor of Lord Tremblestown. We have tried in vain to get their dimensions, for which reason we suspect they are not very remarkable. The finest, we believe, are at Castletown, Kildare, the seat of Edward Conolly, Esq., M.P. One of these, Colonel Conolly informs us, is 13 ft. in girt at 1 ft. from the ground, and has a clear stem of 30 ft.

The largest old oak tree in Ireland, Sir Robert Bateson informs us, is at his residence, Belvoir Park, near Belfast. It measures about 28 ft. in girt at 6 ft. from the ground; but it is split, and much damaged. It is supposed to be between two and three centuries old. It grows about 50 yards from the banks of the river Lagan, in rather moist soil.

At Hillsborough, the seat of the Marquess of Downshire, in Lady Downshire's garden, a tulip tree carries up the girt of 4 ft. 6 in. to the height of 8 ft., when it branches off. It flowers abundantly, and has flowered for many years past. Close to this tree is a Magnòl*ia* acuminàta 25 ft. high, and 4 ft. 4 in. in girt at 2 ft. from the ground, where it branches; it does not flower every year, but in hot summers very abundantly. There is, also, a cedar 8 ft. 8 in. in circumference at 3½ ft. from the ground, where it begins to branch. It is not tall, and is quite flat at the top. There are several other forest trees, and some shrubs of about the same age, or perhaps older, in the grounds, particularly some very fine evergreen oaks. — *J. M. R.*

No Dr. Walker has yet arisen in Ireland to determine the dates of the introduction of particular species, and all that we have been able to do, therefore, is to place before our readers the foregoing statements. From these it appears that more had been done in Ireland in the way of introducing foreign trees and shrubs, previously to the middle of the 18th century, than is generally imagined; that a good deal has been done since; and that there is every encouragement to proceed, from the extraordinary rapidity of the growth of the trees that have been planted. There are also the greatest inducements, in point of climate, as will appear in our succeeding subsection, when we give a list of what are green-house trees and shrubs in England, but which stand the open air in Ireland.

Nurseries were probably established in Ireland about the time when it became fashionable to plant trees. The oldest we know of is that of Toole and Co. at Cullenswood near Dublin, and at Shank Hill near Bray. In both gardens are some very fine specimens of foreign trees and shrubs. At Cullenswood, Magnòl*ia* grandiflòra has attained the height of 17 ft. in 20 years, and M. Thompson*iàna*, 15 ft. in 6 years; *A'*rbutus *A*ndráchne, and *A.* hýbrida, 19 ft. in 27 years; *O'*lea excélsa, as a standard, 17 ft. in 27 years; Pittósporum *Tobìra*, as a standard, 10 ft. in 20 years; *Yúcca* gloriòsa, 8 ft. in 30 years, with a stem a foot in diameter; Aràlia spinòsa, 20 ft. in 20 years; Eriobótrya japónica, 20 ft. in 20 years; *P*ýrus [*S*órbus] nipalénsis, 16 ft. in 7 years; *L*aúrus nóbilis, 25 ft. in 35 years; and *P*æòn*ia* *Moútan*, 8 ft. in 20 years. In the Shank Hill Nursery there is an *A'*rbutus *A*ndráchne, 20 ft. high, with a head covering a space 30 yards in circumference, 30 years old.

The nursery of Mr. Hodgins at Dunganstown, near Wicklow, was established about 1780, and was well stocked with foreign trees and shrubs. Mr. Niven kindly measured some of the largest of these for us in February, 1835, and a copious list has been sent to us by the proprietor, Mr. Hodgins, through Mr. Mackay. The *C*uprèssus lusitánica in this nursery, 54 years planted, is 20 ft. high, with a trunk, at 1 ft. from the ground, 5 ft. in girt, and the branches covering a space the circumference of which is upwards of 120 ft. This is probably the finest in Ireland, next to Lord Ferrard's, mentioned p. 109. There is a hedge of evergreen oaks in this nursery 50 ft. high. There are several large silver firs, with trunks which girt 6 ft. and 7 ft., which have grown to the height of 60 ft.; red cedars 20 ft., and laurels and bays 30 ft. high; there is a Lucombe oak 50 ft. high, with a trunk 18 in. in diameter at 10 ft. from the ground; the cedar of Lebanon, 45 years planted, is from 30 ft. to 35 ft. high; the Portugal laurel is 30 ft. high; the timber of this tree, Mr. Hodgins observes, is better than that of the cherry. There are many pines from 20 ft. to 30 ft. high; aristotelias, 20 ft. high; *O*'lea excélsa, 12 ft. high; Norway maple, the wood of which, Mr. Hodgins observes, is as hard as box; and the sugar maple, growing as vigorously as the common sycamore. All these trees, and many others, were planted by the present proprietor, who, Mr. Niven informs us, is a most enthusiastic and successful cultivator, who has done, perhaps, more in Ireland, in the way of cultivating rare trees and shrubs, than any other contemporary; and who, though of an advanced age, is still healthy and vigorous, and derives the greatest enjoyment from the exercise of his profession.

The nursery of Mr. Robertson, at Kilkenny, was founded by the father of the present proprietor about 1765, who introduced most of the foreign trees and shrubs cultivated about that time in the London nurseries. Though most of these were used as stools for propagation, yet a few of them have been allowed to run up as specimens. Among these is a *C*órylus *C*olúrna, which, at 50 years' growth, is 3 ft. 7 in. in girt at 1 ft. from the ground; it is 25 ft. high, and the diameter of its head is nearly 50 ft. Besides this, an *Ailántus* glandulòsa, a Judas tree, and several others, are worthy of notice; the details of which will be found in the *Gard. Mag.*, vol. xi. p. 210. Most of the other nurseries in Ireland were founded, we believe, in the succeeding century.

The establishment of a Botanic Garden at Glasnevin must have given a considerable stimulus to the introduction of foreign trees and shrubs into Ireland. This garden owes its origin, in 1797, to the late Lord Oriel. The plan of the garden, Mr. Mackay informs us, " was also suggested by His Lordship, but the laying out and arrangement were the work of Mr. Underwood, the late intelligent curator. The arboretum, which was laid out and planted by him in 1798-9, does him lasting honour." Of the *P*ìnus Pallas*iàna*, there are two fine specimens, the largest 40 ft. high, with a trunk 2 ft. in diameter at 1 ft. from the ground, which are probably the best to be met with in Britain or Ireland. What is remarkable in British nurseries, though common in French ones, there is a *P*ìnus *Cémbra*, which was grafted on a Scotch pine about 20 years ago, and now forms a fine tree. The garden contains 30 statute acres; it is described and engraved in Dr. Walsh's *History of Dublin*, and, on the whole, is not only the largest in Europe, but the most comprehensive in its plan. Since the death of Mr. Underwood, in 1834, it has been put under the curatorship of Mr. Niven, one of the most scientific gardeners and active-minded men in the profession. Mr. Niven's plan for the improvement and future management of the Glasnevin Garden is intended to include, not merely the extension of the arrangements of plants botanically, but also an agricultural and horticultural selection of hardy fruits and vegetables, for the purpose of following up the important subject of improving, by crossing, the best existing varieties of such fruits and vegetables.

SUBSECT. 5. *Of the Foreign Trees and Shrubs introduced into Britain in the 19th Century.*

DURING that portion of the nineteenth century which has now (1835) elapsed, the taste for foreign trees and shrubs has considerably increased among planters; and the number of new species and varieties that have been introduced, is proportionately greater than at any former period. Botanic gardens and arboretums have also become more general, and the variety introduced into shrubberies and ornamental plantations, though still not so great as it might be, bears some relation to the general improvement. The establishment of the Horticultural Society of London in the early part of the century, has had a material influence in spreading a taste for every department of gardening, not only in Britain, but throughout the civilised world. The interest, however, which belongs to this century, is greatly diminished to the present generation of readers, from the circumstance of the greater part of it being within their recollection. For this reason we shall limit ourselves to giving a short comparative view of the species of trees and shrubs which have been introduced, and a slight notice of the principal arboretums which have been formed; taking, as our authority for the date of the introduction of the trees and shrubs, our *Hortus Britannicus*.

In the first decade of the nineteenth century, viz., from 1801 to 1810 inclusive, ninety-four trees and shrubs were introduced:

eight by Conrad Loddiges; six by Messrs. Lee and Kennedy; three by Fraser; nineteen by Lyon; one by the Kew Garden; one by the London Horticultural Society; one by Don of the Cambridge Botanic Garden; and one by Sir Abraham Hume. Among the most interesting articles introduced during this decade are, *R*òsa multiflòra, Cunninghàm*ia* lanceolàta, *J*uníperus excélsa, *C*aprifòlium japónicum, *R*òsa Bánks*iæ*, *R*hododéndron catawbiénse (by Fraser), and *C*ratæ̀gus Arònia. It is somewhat remarkable, that of such a number of species introduced during this decade, the names of so few of the introducers should be known; but it must be recollected that the means of introducing were, at this period, principally by packets of seeds sent to the nurserymen by foreign correspondents, or by amateurs; and that, as several years must necessarily elapse between the period of introduction, and that of flowering and naming, the name of the collector who sent the seeds, or of the nurseryman who first raised plants from them, is forgotten, or ceases to be of the same interest. The case is different when living plants are brought into the country, and it is, in truth, chiefly of the introducers of such that the names are known.

From 1811 to 1820, three hundred and seventy-four trees and shrubs were introduced, viz., forty-four by Messrs. Loddiges; twelve by Lyon; four by Lee and Kennedy; three by Whitley and Co. (among which was *S*piræ̀a bélla in 1820); three by the Horticultural Society (including Cotoneáster affìnis in 1820); two by Fraser (*A*ˋbies Fràser*i*, and *Yúcca* angustifòlia in 1811); one by Don of the Cambridge Botanic Garden; one (the *Rìbes* sanguíneum, in 1817) by Archibald Menzies, Esq., who sailed round the world with Captain Vancouver; *G*enísta procúmbens by Schleicher, a botanical collector in Switzerland; one by Knight of the Exotic Nursery, King's Road; and one (Mahòn*ia* fasciculàris) by A. B. Lambert, Esq. Among the most valuable of the species introduced by Loddiges are, Azàlea arboréscens, A. speciòsa, and *Rìbes* aúreum, in 1812; Symphòria racemòsa, *C*ýtisus ruthénicus, *J*uníperus recúrva, and *Yúcca* tenuiflòra, in 1817; *A*´lnus cordifòlia (the most beautiful species of the genus), in 1818; *A*rmenìaca brigantìaca, and *Q*uércus stellàta, in 1819; *C*ratæ̀gus melanocárpa, *C.* latifòlia, *C.* Olivier*iàna*, *F*ráxinus pannòsa, *F.* platycárpa, *F.* láncea, *P*ìnus excélsa, and *A*ˋbies *Píchta*, in 1820. Among those introduced by Lyon are, Magnòl*ia* pyramidàta, in 1811; and Andrómed*a* floribúnda, Nýss*a* cándicans, Bòry*a l*igústrina, B. porulòsa, B. acuminàta, Virgíli*a* lùtea, and *C*ratæ̀gus *a*piifòlia, in 1812. Among the fine plants recorded as having been introduced in this decade, without mentioning the names of the introducers, are, *Æ*´sculus glàbra and pállida, and Pàv*ia* hýbrida, in 1812; *Bérberis* sinénsis, *C*ydònia japónica, and *D*áphne *T*hymelæ̀a, in 1815; Pláner*a* Richárd*i* in 1816; Cratæ̀gus *p*runifòlia, in 1818; *Yúcca* glaucéscens, *Rìbes* caucásicum, and *Caragàna* microphýlla, in 1819; *P*ýrus nepalénsis, *P*hiladélphus hirsùtus, *P*ópulus macrophýlla, *T*ília laxiflòra, *P*ìnus adúnca, and *P.* uncinàta, in 1820.

From 1821 to 1830, three hundred and eighteen trees and shrubs were introduced; viz., upwards of sixty by the Horticultural Society; twenty-five by Schleicher (obscure species of willows); twenty-one by Messrs. Loddiges; four by Lord Carnarvon; three by Whitley; one by Malcolm; one by Shepherd of Liverpool; one by Don of Cambridge; one by Low of Clapton; one by Philip Barker Webb, Esq.; one (Benthàm*ia* fragífera, in 1825) by J. H. Tremayne, Esq.; one by the late Mr. William Baxter (Sóllya heterophýlla, in 1830); one by Bunney; and one (*Rìbes* speciòsum, in 1829) by A. B. Lambert, Esq. By far the greater number of the species introduced by the Horticultural Society were sent home by the late unfortunate Douglas, from the north-west coast of North America; among them are, *Bérberis A*quifòlium, Gaulthèr*ia Shállon*, *A*rctostáphylos tomentòsa, *Rìbes* viscosíssimum, and *A*'cer macrophýllum, in 1826; and *Bérberis* glumàcea, *A*'cer circinàtum, *A*'rbutus procèra, *Rìbes* níveum, inèbrians, and divaricàtum; *R*ùbus spectábilis, *A*'bies Douglàs*ii*; *P*ìnus ponderòsa, Lambert*iàna*, and Sabin*iàna*; *Amelánchier* flórida, and Gárry*a* ellíptica, in 1827. In this decade the Horticultural Society also introduced the *C*èdrus *Deodàra* from Nepal, in 1822; and Cotoneáster frígida, and C. Nummulària, in 1824. Among those by Loddiges are, *Q*uércus *Taúzin* and Gledítsch*ia* cáspica, in 1822; *A*'cer *o*pulifòlium, *F*ráxinus álba, epíptera, fúsca, macrophýlla, and quadrangulàris, all in 1823; and *F*ráxinus cinèrea and Cotoneáster microphýlla, in 1825. The greatest number of the valuable trees and shrubs added to the British arboretum, during this century, was introduced by Messrs. Conrad Loddiges and Sons, and the next greatest number by the Horticultural Society. Messrs. Loddiges received their importations chiefly from their foreign correspondents, and more especially from American collectors and nurserymen. The principal British collectors during this period were, Fraser, Lyon, and Douglas. Notices of the first two have been kindly prepared for us by Mr. Forsyth; and of the latter we shall give a short abstract of a biographical memoir which appeared in the *Gard. Mag.*, vol. x. p. 271.

John Fraser was a native of Inverness-shire; he came to London about 1770 (or 1776), married, and settled as a hosier and draper in Paradise Row, Chelsea; but, being of a very active and enterprising turn of mind, and having imbibed a taste for plants in his frequent visits to the physic garden at Chelsea, then under the care of the late Mr. Forsyth, he determined on proceeding to North America in search of new, rare, and interesting plants.

Accordingly, in 1783 or 1784, he embarked for Charleston, South Carolina, where he made his first collection of many valuable new plants, which he consigned for sale to the care of Mr. Frank Thoburn, nurseryman, at Old Brompton. In the beginning of 1785 he returned to London, and expected to receive the reward of his labours, but was told that all his valuable plants had died, and that those remaining were common, and not very saleable. This created a misunderstanding which led to a lawsuit, which was long and very expensive to both parties.

In the autumn of 1785 he again visited South Carolina, where he made acquaintance with a most valuable friend, Thomas Walter, Esq., an eminent botanist, who had compiled a *Flora Caroliniana*, which MS. Mr. Fraser brought to London, and which was published by him in 1788, 8vo (the original herbarium of Mr. Walter is now in the possession of Mr. J. Fraser). In this second journey he was very successful in bringing home with him many new American plants, seeds, and dried specimens of plants, and various other objects of natural history. These were disposed of principally to the different plant collectors, nurserymen, and others, and he obtained liberal prices for them. Among the plants were several species of pines, oaks, magnolias, azaleas, rhododendrons, &c.; all most valuable and ornamental trees and shrubs, hitherto unknown in the gardens of England. The *Hortus Kewensis* records 16 new plants as having been introduced by Mr. Fraser in 1786, and five more in 1787. He likewise brought home with him, for cultivation, the seeds of a new species of grass, then named *A*gróstis cornucòpia (now Trichòdium decúmbens), an account of which, with a coloured plate, he published in 1787 folio.

In 1790 and 1791 Mr. Fraser made his third and fourth voyages to America, where he extended his researches, and added further to his former collections. In 1791 he introduced the Thàli*a* dealbàta. About 1795 he established himself in a nursery, at Sloane Square, Chelsea, to which place all his subsequent consignments were made.

In April, 1796, he had completed his fifth voyage from America, bringing with him seeds and plants for sale as before. This year he visited Petersburgh, taking with him a choice collection of plants, which were purchased, and paid for most liberally, by the Empress Catherine. Upon his return to England, he introduced that fine fruit, the black Tartarian cherry, and also the white Tartarian cherry.

In 1797 and 1798 he repeated his visits to Russia, having been honoured with the commands of the imperial family to make further additions to their botanical collections; and, in the execution of these commands, he gave such satisfaction, that he was honoured, by special appointment, with the title of Botanical Collector to their Imperial Majesties the Emperor Paul and the Empress Marie, under the sign manual of each, dated Paulowskoe, August, 1798; and in furtherance of this commission he again, with his son John, in 1799, 1800, and 1801, visited the southern states of North America, the Isle of Cuba, the Bahamas, &c. In their passage to the Havannah, from the United States, they were shipwrecked, and saved themselves, with great difficulty, in the Cayos, a small island at the entrance of the Old Channel. In Cuba they had the good fortune to meet with the celebrated travellers Baron von Humboldt and Aimé Bonpland, and from these generous men of science they received every assistance and kind recommendations to the authorities at the Havannah. After an absence of more than two years, Mr. Fraser returned to England with many new and valuable discoveries. (In 1800, the *Hortus Kewensis* records the introduction of thirteen new plants by the Frasers, and in 1801 two more, Andrómed*a cassini*fòlia and Magnòl*ia* cordàta.) He again went to Russia, but, in consequence of the sudden termination of the life of the Emperor Paul, he was unsuccessful, as his services were neither acknowledged nor requited by the Emperor Alexander. He made two visits afterwards to the capital of Russia, and to Moscow, in a fruitless attempt to obtain a just remuneration for his arduous and perilous employment.

In the vicinity of Matanzas, in Cuba, they discovered a beautiful species of palm, with silvered leaves (Córypha miraguàma *Humb. et Bon.*, Nov. Gen. 1. p. 290.), the leaves of which produce a most beautiful and durable material for the manufacture of ladies' hats and bonnets. These were woven by the hand, all in one piece, without sewing, in a new and peculiar manner: a patent was taken out for making them, and the manufacture was patronised by Her Majesty the late Queen Charlotte, and conducted under the management of his sister, Mrs. Christiana Fraser, through whose great perseverance in teaching many young persons the secret of the work, employment was afforded to a number of hands. Subsequently the manufactory proved unsuccessful, from want of capital, more than any other cause.

In 1806, 1807, 1808, 1809, Mr. Fraser made his last excursions to North America, in company with his eldest son. (The *Hortus Kewensis* records nine new plants introduced by them in 1809.) After this, he remained at his nursery in Sloane Square, carrying on the business there, in which, however, he was not successful. Here frequent disappointments, ill-treatment, and other circumstances, all tended to break down one of the most enterprising, indefatigable, and persevering men that ever embarked in the cause of botany and natural science.

He died at Sloane Square, April 26. 1811, in his 60th year, leaving his wife, who died a few years afterwards, and two sons; John, the eldest, who had been his companion in all his latter voyages to America and Russia, and who is now a respectable nurseryman at Ramsgate, and James Thomas, also living.

Of John Lyon, another botanical collector, very little is known. He is said to have been a natural son of William Lyon, Esq., of Gillogie, Forfarshire, who was afterwards a merchant in London. When he went to America is uncertain; Pursh, who had the management of the gardens of William Hamilton, Esq., at Woodlands, near Philadelphia, informs us that, when he resigned, in 1802, Lyon succeeded him, and remained there till 1805.

During this period Lyon, we are told by the Messrs. Loddiges, sent home several plants and seeds; and the year after he left Mr. Hamilton's service (1806), he brought an extensive collection to England; the plants composing which were partly disposed of by private contract, but were chiefly sold by auction in a garden at Parsons' Green, Fulham. The catalogue of these plants fills 34 closely printed pages, it enumerates 550 lots, and the sale occupied four days. Several of the lots were composed of large quantities of one-year-old seedlings in pots; and ten lots at the end of the sale consisted each of 50 different sorts of seeds. This, it is believed, was by far the greatest collection of American trees and shrubs ever brought to England at one time, by one individual. It contained scarcely any herbaceous plants; and the trees and shrubs were chiefly such as had been already introduced. In the *Hortus Kewensis* fourteen new plants are mentioned as having been introduced by Lyon in 1806, which, doubtless, formed part of the importation of that year.

Mr. Lyon appears to have soon after gone out again, and explored the southern states of North America; viz., the Carolinas, Georgia, and Florida; and, in 1811 and 1812, he again brought over a large collection of plants in cases, which arrived in very fine condition, and were disposed of by public auction at Chelsea. Six plants are mentioned in the *Hortus Kewensis* as having been introduced by Lyon during these years.

Mr. Nuttall separated some of the species of Andrómed*a*, and formed of them a new genus, which he named Lyòn*ia*. "To commemorate the name of the late Mr. John Lyon, an indefatigable collector of North American plants, who fell a victim to a dangerous epidemic amidst those savage and romantic mountains which had so often been the theatre of his labours." (*Gen. of N. American Plants*, Boston, 8vo, 1820, 1. p. 266.) The genus was, however, named before Mr. Lyon's death, as appears by the catalogue, before referred to, of plants sold in 1806, in which several species of Lyòn*ia* are mentioned. Mr. Lyon, it is believed, died in 1818.

David Douglas was born at Scone, near Perth, and served his apprenticeship, as a gardener, in the gardens of the Earl of Mansfield. About the year 1817 he removed to Valleyfield, the seat of Sir Robert Preston, Bart., then celebrated for a choice collection of exotics, and shortly afterwards went to the Botanic Garden of Glasgow. Here his fondness for plants attracted the notice of Dr. Hooker, the professor of botany, whom he accompanied in his excursions through the Western Highlands, and assisted in collecting materials for the *Flora Scotica*, with which Dr. Hooker was then engaged. This gentleman recommended him to the late secretary of the Horticultural Society, Joseph Sabine, Esq., as a botanical collector; and in 1823 he was despatched to the United States, where he procured many fine plants, and greatly increased the Society's collection of fruit trees. He returned in the autumn of the same year; and in 1824 an opportunity having offered, through the Hudson's Bay Company, of sending him to explore the botanical riches of the country adjoining the Columbia river, and southwards towards California, he sailed in July for the purpose of prosecuting this mission.

While the vessel touched at Rio de Janeiro, he collected many rare orchideous plants and bulbs. Among the latter was a new species of Gesnèr*ia*, which Mr. Sabine named, in honour of its discoverer, G. Douglàs*ii*. He was enraptured with the rich vegetation of a tropical country; he stopped at Rio longer than he anticipated, and left it with regret. In the course of his voyage round Cape Horn he shot many curious birds peculiar to the southern hemisphere, and prepared them for sending home. On Christmas-day he reached the celebrated island of Juan Fernandez, which he describes as "an enchanting spot, very fertile, and delightfully wooded. I sowed a large collection of garden seeds, and expressed a wish they might prosper, and add to the comfort of some future Robinson Crusoe, should one appear." He arrived at Fort Vancouver, on the Columbia, on the 7th of April, 1825. Here an extensive field presented itself to him; and the excellent manner in which he performed his duty to the Horticultural Society cannot be better exemplified than by referring to the vast collections of seeds which from time to time he transmitted home, along with dried specimens, beautifully preserved, and now forming part of the herbarium in the garden of the Society at Chiswick. Of the genus *P*ìnus he discovered several species, some of which attain to an enormous size. The *P*ìnus Lambert*iàna*, which he named in compliment to Aylmer Bourke Lambert, Esq., vice-president of the Linnæan

Society, is, perhaps, the largest of the whole. One of these, which had been blown down, measured 215 ft. in length, and 57 ft. 9 in. in circumference, at 3 ft. from the ground. The cones of it, which Mr. Douglas sent home, were 16 in. long, and 11 in. in circumference. The kernel of the seed is sweet and pleasant to the taste, and is eaten by the Indians, either roasted, or pounded into coarse cakes for winter store. The resin, which exudes from the trees when they are partly burned, loses its usual flavour, and acquires a sweet taste; in which state it is used by the natives as sugar. Another species, named by Mr. Sabine *A*bies Douglàs*ii*, attains nearly the size of the above.

In the spring of 1827 Mr. Douglas traversed the country from Fort Vancouver, across the Rocky Mountains, to Hudson's Bay, where he met Captain (now Sir) John Franklin, Dr. Richardson, and Captain Back, returning from their second overland arctic expedition. With these gentlemen he came to England in the autumn, bringing with him a variety of seeds, as well as specimens of plants and other objects of natural history. Through the kindness of his friend and patron Mr. Sabine, he was introduced to the notice of many of the leading literary and scientific characters in London; and shortly afterwards he was honoured by being elected, free of expense, a Fellow of the Linnæan, Geological, and Zoological Societies; to each of which he contributed several papers, since published in their *Transactions*, evincing much research and acuteness as a naturalist. Some entertaining extracts from his letters to Dr. Hooker were published in *Brewster's Edinburgh Journal* for January, 1827; and a genus of plants belonging to the natural order Primulàceæ was dedicated to him by Professor Lindley, and defined in *Brande's Journal* for January, 1828.

After being in London for two years, Mr. Douglas again sailed for Columbia in the autumn of 1829; where he remained some time, enjoying his favourite pursuit, and adding largely to his former discoveries. His return was expected by the very ship which brought the tidings of his horrible death; an event which was occasioned by his falling into a pit made by the natives of the Sandwich Islands for catching wild bulls, one of the latter being in at the time.

The plants introduced by Mr. Douglas are supposed to be more numerous than those introduced by any other individual whatever; and what greatly adds to their value is, that, being from a temperate region, they will all endure the open air in this country. The number of herbaceous species which he introduced amounts to nearly 100, and of trees and shrubs to 50. The names of the latter compose the following list, which has been kindly communicated to us by Mr. Munro, the head gardener of the London Horticultural Society.

In 1826 and 1827.

*À*bies Douglàs*ii*.
*À*cer circinàtum.
    macrophýllum.
Amelánchier flórida.
    parvifòlia.
*Á*rbutus procèra.
*A*rctostáphylos tomentòsa.
*Bérberis A*quifòlium.
    glumàcea.
*C*aprifòlium ciliòsum.
    Douglàs*ii*.
    hispídulum.
*C*àrya nìgro-cathártica.
*C*eanòthus collìnus.*
    *ellípticus.
Gárry*a* ellíptica.
Gaulthèr*ia Shállon*.
**L*aúrus occidentàlis.
*P*ìnus Lambert*iàna*.
    ponderòsa.
Púrsh*ia* tridentàta.
Rìbes viscosíssimum.
    aúreum.
    cèreum.
    divaricàtum.
    echinàtum.
    irríguum.
    lacústre.
Rìbes níveum.
    petiolàre.
    sanguíneum.
*R*ùbus nutkànus.
    spectábilis.
*S*álvia carnòsa [Audibért*ia* incàna.]
*S*piræ̀a *a*riæfòlia.
*V*accínium ovàtum.

In 1831.

*À*bies amábilis.
    grándis.
    Menziès*ii*.
    nóbilis.
*C*lématis Douglàs*ii*.
*P*ìnus montícola.
    mont. var. with red cones.
    Sabin*iàna*.
*P*ýrus rivulàris.
Rìbes glutinòsum.
    *m*alvàceum.
    speciòsum.

In 1832.

*L*upìnus álbifrons.
*P*ìnus Sabin*iàna* var.

In 1833.

*P*ìnus insígnis.

Of the above specimens, which were all introduced by seeds, the three marked with a * did not vegetate. Some species of *R*òsa and *C*ratæ̀gus, not included in the above list, have vegetated, but are not enumerated, as they have not yet flowered; and consequently have not yet been named or identified.

To enable our readers to take a general view of the various details respecting introductions given in the preceding pages, we shall next endeavour to generalise them; first, numerically; and, secondly, geographically. For the first object, we have had from our *Hortus Britannicus* an enumeration made of the number of species introduced in each decade, from the beginning of the 16th century to the end of the year 1830. We do not give this enumeration as perfectly accurate; because many of the species in our catalogue, as in every other, are doubtful; but it is not of much consequence whether it be perfectly accurate or not; it is sufficiently so to show the ratio of the increase of the introductions, from the earliest periods of which we have any record of them, up to the present time.

There were introduced from the year	to the year	Species.	There were introduced from the year	to the year	Species.
1548	1550	17	1691	1700	24
1551	1560	1	1700	1710	12
1561	1570	18	1711	1720	12
1571	1580	3	1721	1730	44
1581	1590	2	1731	1740	69
1591	1600	48	1741	1750	21
1601	1610	1	1751	1760	77
1611	1620	1	1761	1770	58
1621	1630	22	1771	1780	58
1631	1640	27	1781	1790	49
1641	1650	4	1791	1800	45
1651	1660	17	1801	1810	93
1661	1670	7	1811	1820	364
1671	1680	1	1821	1830	242
1681	1690	27			

The numbers, taken by centuries, are, in the 16th century, 89; in the 17th, 131; in the 18th, 445; and, in the first three decades of the 19th, 699! The total number of foreign trees and shrubs introduced up to the year 1830, appears to be about 1300; or, probably, up to the present moment, including all those species which have not yet flowered, and, consequently, have not yet been recorded in books, about 1400.

The countries from which these 1300 species have been introduced appear, from the *Hortus Britannicus*, to be as under: —

Europe: Greece, Turkey in Europe, and the Levant, 36; Italy, 35; Sicily and other Mediterranean islands, 19; Spain, 69; Portugal, 12; Switzerland, 49; France, 34; Germany, 52; Hungary, 46; Russia, 41; Sweden, 4; Lapland, 4; Spitzbergen, 1; North of Europe, 2; Central Europe, 18; South of Europe, 111: in all, 543. *Asia:* Siberia, 69; Asia Minor, 3; East Indies, 4; Nepal, 54; China, 34; Japan, 11; Persia, 5; Asia, 3: in all, 183. *Africa and the Canary Isles:* Barbary States, 13; Egypt, 3; Cape of Good Hope, 4; Canary Isles, 3: in all, 23. *America:* North America, 528; Mexico, 4; South America, 22; Straits of Magellan, 6: in all, 560. *Australia and Polynesia:* New Holland, 1; Van Diemen's Land, 2; New Zealand, 1: in all, 4.

It would thus appear, that nearly half the foreign trees and shrubs in the country have been introduced during the present century; and that these have been brought chiefly from North America. Among them there are not more than 300 trees which attain a timber-like size, and of these by far the most valuable is the larch. Some of the European acers, the sweet chestnut, some oaks, some poplars, pines, and firs, and the platanus and cedar from Asia, are also valuable as timber trees; but the chief accessions to this class are the acers, oaks, elms, ashes, poplars, birches, pines, and firs of North America. Our principal fruit trees are from Asia, including the common walnut, which is both a fruit and a timber tree; but by far the finest ornamental trees and shrubs are from North America. Our greatest hopes for future introductions are from the unpenetrated regions of North America, and the mountainous regions of Asia and New Zealand.

We shall conclude this chapter by enumerating some of the principal planters of arboretums, and places where arboretums were planted, during the present century; premising that we do not include in this list any of those places which were commenced during the last century.

Among the planters of arboretums in Great Britain during the nineteenth century, the first place belongs to George, fourth duke of Marlborough. This nobleman, when Marquess of Blandford, resided on the estate of White Knights, near Reading, from the year 1800 till he succeeded his father in 1817. About 1801 he began to collect plants of every description, built numerous hot-houses for the exotics, and occupied a large walled garden with the hardy herbaceous plants, and the more choice trees and shrubs. Soon after, finding this garden too limited, he employed, as an arboretum, a space of several acres, called the Wood; and throughout the park at White Knights he distributed many trees, and a collection, as extensive as could be then procured, of the genus *C*ratæ̀gus. About this time magnolias, rhododendrons, azaleas, and other American trees and shrubs, being rare, or newly introduced, bore enormously high prices; but price was never taken into consideration by the Marquess of Blandford. He was never content with only one plant of a rare species, if two or more could be got; and the late Mr. Lee of the Hammersmith Nursery informed us, that he had sold several plants of the same species to the marquess when they were at twenty guineas, and even thirty guineas each. In consequence of a similar mode of proceeding in his transactions generally, the Marquess of Blandford soon found himself involved in debt and lawsuits, which, since 1816, have greatly crippled his exertions. He has still, however, the same taste for plants, and indulges it, as far as his limited resources will permit, in the pleasure-grounds of the palace at Blenheim, where His Grace at present resides. White Knights is now chiefly remarkable for its magnolia wall, which is 145 ft. long and 24 ft. high, entirely covered with twenty-two plants of Magnòl*ia* grandiflòra, which flower every year from June till November. They were planted in the year 1800, when the price in the nurseries, for good plants, was five guineas each. In the Wood there are a great number of remarkably fine specimens of all the species of Magnòl*ia*, and especially of M. auriculàta and acuminàta. There are also very fine trees of *À*cer rùbrum, sacchárinum, and striàtum; of *Æ̀*sculus and Pàv*ia*, of *À*rbutus, of Kölreutèr*ia*, of Virgíli*a*, of *C*òrnus flórida, of

Gledítsch*ia*, *C*ércis, *C*ratæ̀gus, and Photínia 15 ft. high; some of the finest trees of *P*ỳrus nivàlis and bollwylleriàna in the country; of Halès*ia*, *D*iospỳros, Nýss*a*, Gymnócladus, Plánera, *J*ùglans, Stuárt*ia*, *L*aúrus, *Q*uércus, *J*uníperus, *T*hùja, a remarkably fine Cunninghàm*ia*, and many pines, among which are the greatest number of *P*ìnus Pallas*iàna* to be found together in any grounds in England. *P*ìnus *Cémbra* has here attained the height of 30 ft. in 35 years; and *L*àrix péndula that of 50 ft. in the same time. At Blenheim the duke has introduced the finest trees he could procure, in numbers and in masses, as far as he was enabled to do so; and Magnòl*ia* conspícua, of which seldom more than one or two plants are to be found in any one demesne, may be there reckoned by dozens. An account of White Knights, as far as its picturesque beauty extends, will be found in Hofflands's *Description of White Knights*, Lond. 1819, fol.; and of its gardens, in a botanical and horticultural point of view, in the *Gardener's Magazine*, vol. ix. p. 664.; in which work will also be found an account of Blenheim, vol. x. p. 99. The Duke of Marlborough's gardener, from the commencement of the duke's gardening operations at White Knights to the present time, has been Mr. Jones. White Knights, which is now the property of Francis Cholmeley, Esq., has its gardens under the direction of Mr. Ward. The house is at present (1835) unoccupied.

William Beckford, Esq., of Fonthill Abbey, began to plant at that place all the rare trees and shrubs which he could procure, about the same time as the Duke of Marlborough planted White Knights. He paid no attention to house or to herbaceous plants, but, like the duke, he planted the choicest trees and shrubs, in quantities, without any regard to their cost; paying for them, we believe, in ready money. We had the satisfaction of inspecting the grounds at Fonthill twice in 1806, when they were in their highest beauty and keeping; and we spent two days in looking at them again in 1833, when they were in a state of neglect, and when the greater number of the rare trees and shrubs, and in particular the pinetum, thornery, and rosary, were almost obliterated by the growth of common trees and shrubs. There are still some fine magnolias, rhododendrons, and azaleas in the American ground, which have been hardy enough to cope with the native trees which have been planted, or have sprung up fortuitously around them. The scenery of Fonthill has somewhat of a Swiss character, from the hilly ridge on which the Abbey is built, and the prevalence of the pine and fir tribe in the woods; and in it there is an air of melancholy grandeur, unlike that of any other place that we are acquainted with in Britain. A description of Fonthill Abbey, when in its most perfect state, has been given by Britton, in his *Wiltshire*, and a notice of it, as it appeared to us in 1833, will be found in the *Gard. Mag.*, vol. xi. p. 425.

After White Knights and Fonthill Abbey, the following places may be mentioned as subsequently planted, and as containing collections of trees and shrubs more or less extensive. In Bedfordshire, Flitwick House, where an arboretum was planted in 1829. (See *Gard. Mag.*, vol. v. p. 559.) At Woburn Abbey, where a salicetum, or salictum (as the Duke of Bedford more classically terms it, in his *Salictum Woburnense*), was planted in 1825, and where an arboretum is now, 1835, commenced. In Berkshire, High Clere, where a number of American trees and shrubs were planted, and a great quantity of fine hybrid rhododendrons and azaleas raised, between 1820 and 1830; and Dropmore, where there is the most complete pinetum in England, the species and varieties amounting, in 1835, to 120. In Cornwall, at Carclew, there is a good collection. In Derbyshire, at Chatsworth, a very complete arboretum was begun in 1834; of which an account and ground plan will be found in the *Gardener's Magazine*, vol. xi. p. 385. In Devonshire, Luscombe near Dawlish (said by Davis, in his *Landscape-Gardener*, to be "an unrivalled production of fine taste"), Endsleigh Cottage, Mamhead, and Bicton, contain good collections. In Essex, Hylands. In Hampshire, Bishop Stoke Vicarage. In Hertfordshire, Cheshunt, which contains a pinetum. In Kent, at Cobham Hall, a very good collection. In Lancashire, Latham House. In Northumberland, Belsay Castle, where there is a pinetum. In Staffordshire, Alton Towers, and Somerford Hall, where there is an excellent arboretum, with sufficient space allowed for the trees to attain their full size. In Suffolk, Barton Hall. In Surrey, Bagshot Park, Milford, where there is a regular arboretum, Oakham Park, Mere Cottage, and Deepdene. In Sussex, West Dean, and Arundel Castle. In Wiltshire, Wardour Castle, where there is a good pinetum, and Boynton.

In Scotland may be mentioned, Hafton, in Argyleshire; Gordon Castle, in Banffshire; Drumlanrig, and Jardine Hall, in Dumfriesshire; Dalhousie Castle, in Edinburghshire; St. Mary's Isle in Kirkcudbrightshire; and Dunrobin, in Sutherlandshire.

In Ireland, Terenure, near Dublin, where there is the most complete arboretum in the country; and Charleville Forest, in Meath, where an arboretum was begun in 1811.

Several public bodies have commenced arboretums during this century. In England the first of these is that of the London Horticultural Society, whose collection, in their garden at Turnham Green, commenced in 1823, may be considered the first in England. It is to be regretted that the space in the garden devoted to this arboretum was originally much too small; and also, that the trees and shrubs were chiefly crowded together in clumps, which have subsequently never been sufficiently thinned out. In consequence of this, the different kinds have not had an equal chance of displaying themselves, or of attaining that magnitude and character which they ought to have to answer the ends of an arboretum. (See our ideas more at length, and illustrated by figures, in the *Gard. Mag.*, vol. v. p. 346. and fig. 79., and vol. vi. p. 250. and fig. 44.) There is an arboretum in the Liverpool Botanic Garden, in that of Hull, in that of Colchester, in that of Manchester, in that of Birmingham, and one is just commenced in that of Sheffield. The Caledonian Horticultural Society have an arboretum in their experimental garden at Inverleith; that of the Botanic Garden of Edinburgh has been much increased; and there is a good one in the Glasgow Botanic Garden. In Ireland, the Trinity College Botanic Garden was laid out by Mr. Mackay in 1808, and at first contained only three acres. In 1833 two acres more were added, which are principally occupied by ornamental trees on a grass lawn, with surrounding borders for showy herbaceous plants, and trees and shrubs which require the protection of a wall. An arboretum was commenced in the garden of the Cork Institution, soon after the foundation of the Trinity College Botanic Garden; but that institution has been since broken up, and the plants and trees of the garden sold and dispersed. The Belfast Botanical and Horticultural Society established a garden and an arboretum about 1830. The Glasnevin Garden belongs to the preceding century.

The British nurserymen have not been wanting in forming arboretums. Preeminently among them stand the Messrs. Loddiges of Hackney, who have been assiduously collecting trees and shrubs from all parts of the world, since the middle of the last century; and in the year 1818, when these amounted to above 1200 species and varieties, exclusive of azaleas, roses, and willows they were arranged alphabetically on the right hand side of a walk forming a scroll like the Ionic volute, extending over a space of upwards of seven acres, commencing with the letter A, at the outer circumference, and terminating with Z (*Z*ízyphus) near the centre. The centre itself forming the eye of the arboretum consists of ten concentric zones, devoted to peat earth plants, commencing in the outer zone with Andrómed*a*, and terminating in the inner one with *V*accínium. The collection of willows, which is very extensive, is placed by itself in the circumference; as is also the collection of yuccas. The collection of roses, which exceeds 1500 sorts, is planted on the left hand side of the scroll walk, and their number being about the same, as that of the trees and shrubs which do not require peat earth, they extend to the commencement of the concentric zones. The surrounding boundary walls are covered with half-hardy trees and shrubs. In 1830 this arboretum was in a high degree of perfection, and in the autumn of that year we had sketches taken of all the trees and shrubs, to the scale of a quarter of an inch to a foot. As the object of Messrs. Loddiges was to include in one place, not only specimens of each particular tree and shrub, but also stools for propagating them, and a stock of young plants for sale, all placed beside the specimen plant, it became necessary to cut down the specimens as soon as they had attained a certain size; and this was accordingly done with many of the timber trees in 1832 and 1833. To us this has been an incalculable loss, because it has prevented us from examining many of the trees in flower; but the stools or young plants still remain, and the collection is increasing every year. So spirited an undertaking cannot be sufficiently appreciated; and it is only to be regretted that the want of a separate piece of ground for containing the stools and the plants for sale, rendered necessary the felling of a collection of specimens such as could be found assembled together nowhere else in the world. Some account of this arboretum, accompanied by a plan, will be found in the *Encyclopædia of Gardening*, edit. of 1835, p. 1217. Such a magnificent example could not be expected to be generally followed by commercial men, but it has rendered more frequent the practice among nurserymen of planting out specimens of choice trees and shrubs; and some have subsequently even formed regular arboretums. Among these the first in the order of time, as well as in completeness, is that of Mr. Donald of the Goldworth Nursery, near Woking, in Surrey, which was commenced in 1831, and of which an account, with a plan, will be found in the *Gard. Mag.*, vol. vii. p. 360. This arboretum, which we viewed in May, 1834, already contains a number of very fine specimens. Mr. Buchanan, jun., of Camberwell, has spared no pains in collecting trees and shrubs; and had got together, in 1834, though in a limited space, a collection which may rank next to that of Mr. Donald. Mr. Miller of the Bristol Nursery has also planted an arboretum; and a nursery has been formed by Messrs. Young and Penny, at Milford, connected with the arboretum of Philip Barker Webb, Esq., which Messrs. Young and Penny are greatly increasing every year, by the addition of new species. This arboretum contains a great number of oaks, acers, and pines. Mr. Rogers of Southampton began an arboretum in 1833; and Mr. Page of the same place is also forming one. More or less has been done in this way, in the nurseries of Messrs. Lee of Hammersmith, Messrs. Osborne of Fulham; Mr. Knight of the Exotic Nursery, King's Road, Chelsea; Messrs. Young of Epsom, Mr. Newman of Chichester, Mr. Cunningham and Mr. Skirving of Liverpool, Messrs. Dickson of Chester, Messrs. Pope of Birmingham, Messrs. Backhouse of York, and a number of others. In Scotland, Mr. Lawson of Edinburgh is most assiduous in collecting trees and shrubs, both at home and abroad; and he has commenced an arboretum, which already contains a collection of pines and firs not surpassed by any in Britain. An account of this arboretum, which will soon be the first in Scotland, will be found in the *Gard. Mag.*, vol. xi. Messrs. Dickson of Edinburgh, Brown at Perth, and Messrs. Austin of Glasgow, have also a great many choice trees planted out, as have various other nurserymen in that country. In Ireland we have already mentioned the nurseries most celebrated for their fine specimens and extensive collections.

CHAP. III.

OF THE HISTORY AND GEOGRAPHY OF THE TREES AND SHRUBS OF THE CONTINENT OF EUROPE.

THE Continent of Europe has supplied, as we have seen in the preceding chapter, a considerable number of trees and shrubs to the British Arboretum. The different countries which compose it have been so thoroughly explored by botanists, that few farther additions can be expected from them; but it will be, nevertheless, interesting to examine the indigenous ligneous flora of each as compared with that of Britain, and its capacity for receiving additions from the trees and shrubs of other parts of the world. We shall take these countries in the order of France, Holland and the Netherlands, Germany, Scandinavia, Russia and Poland, Switzerland, and Greece, Italy, Spain, and Portugal; and, considering the subject as one of secondary interest to that of the preceding chapter, our observations on it will be brief.

SECT. I. *Of the Indigenous and Foreign Trees and Shrubs of France.*

FRANCE, from its extent, the warmer climate of its southern provinces, and the varied character of its surface, including as it does some of the highest mountains in Europe, and a portion of the shores both of the Atlantic Ocean and the Mediterranean Sea, contains the richest indigenous ligneous flora of any country in Europe. There are few if any trees and shrubs which are indigenous to Britain that are not also indigenous to France; and there are in addition, in the latter country, all the species contained in the following enumeration, taken from Duby and De Candolle's *Botanicon Gallicum*, published in 1828. In this enumeration those orders, genera, or species, marked with a star (*), are either only in cultivation, or known or supposed to be not truly indigenous.

R*anunculàceæ.* *C*lématis Flámmula, F. var. marítima, cirrhòsa var. pedicellàta, baleárica; *A*tragène austrìaca.

Crucíferæ. Matthìol*a* trístis; *I*bèris Garrex*iàna*, saxátilis, semperflòrens.

* C*apparídeæ.* *C*ápparis spinòsa.

C*istíneæ.* *C*ístus incànus, críspus, álbidus, *s*alviæfòlius, corbariénsis, monspeliénsis, *L*èdon, hirsùtus, longifòlius, *p*opulifòlius, *l*aurifòlius, ladaníferus; Heliánthemum umbellàtum, *a*lyssöìdes, *a*lyssöìdes var. rugòsum, *h*alimifòlium,

Fumàna, procúmbens, læ′vipes, glutinòsum, g. var. *t*hymifòlium, g. var. *j*unipérinum, *o*riganifòlium, œlándicum, alpéstre, penicillàtum, itálicum, cànum, lavandulæfòlium, *s*tœchadifòlium, acuminàtum, grandiflòrum, obscùrum, o. var. nummulàrium, hírtum, pilòsum, apennìnum, a. var. híspidum, pulverulentum, *r*òseum, *majoranæ*fòlium.

P*olygàleæ.* *P*olýgala saxátilis, Chamæbúxus.

M*alvàceæ.* Lavátera O′lbia, marítima; **H*ibíscus syrìacus.

**Aurantiàceæ.* *C*itrus *M*édica, *L*imònium, Aurántium, vulgàris: all cultivated.

A*cerìneæ.* *A*`cer *o*pulifòlium, monspessulànum, *p*latanöìdes.

**Hippocastàneæ.* *Æ*′sculus Hippocástanum.

*M*eliàceæ.* *M*èlia *Azedarách.*

*V*ìtes.* *V*ìtis vinífera, laciniòsa.

R*utàceæ.* *R*ùta montàna, gravèolens, bracteòsa, angustifòlia, córsica.

C*oriarièæ.* *C*oriària *m*yrtifòlia.

C*elastrìneæ.* *E*uónymus latifólius.

R*hámneæ.* *Z*ízyphus vulgàris; *P*aliùrus aculeàtus; *R*hámnus *A*latérnus, Clùs*ii*, infectòrius, saxátilis, pubéscens, pùmilus, p. var. rupéstris, alpìnus, a. var. córsicus.

Anacardiàceæ. * *P*istàcia vèra, *T*erebínthus, *L*entíscus, *L.* var. angustifòlia; *R*hús *C*ótinus, *C*oriària, radìcans; *C*neòrum tricóccum.

Leguminòsæ. *A*nagỳris fœ′tida; *U*`lex provinciàlis; *S*pártium *j*únceum; *G*enísta cándicans, *l*inifòlia, hórrida, Lobèl*ii*, Salzmánn*i*, córsica, c. var. pubéscens, Scórpius, hispánica, germánica, púrgans, cinèrea, humifùsa, sagittàlis, s. var. mìnor, prostràta, pilòsa; *C*ýtisus *L*abúrnum, alpìnus, sessilifòlius, triflòrus, spinòsus, lániger, supìnus, capitàtus, argénteus; Adenocárpus parvifòlius, telonénsis; *O*nònis arachnöídea, *N*àtrix, rotundifòlia, fruticòsa, arragonénsis; *A*nthýllis *c*ytisöìdes, Hermánn*iæ*, erinàcea, Bárba-Jovi*s*; Medicàgo suffruticòsa, s. var. Benthàm*ii*; *D*orýcnium réctum, hirsùtum, h. var. incànum, suffruticòsum; *L*òtus créticus; Psoràlea bituminòsa; * Robín*ia* Pseùd-*A*càcia; *C*olùtea arboréscens; *A*strágalus massiliénsis, aristàtus; Coronílla E′merus, *j*úncea, valentìna, glaúca; * *C*eratònia *S*íliqua; *C*ércis *S*iliquástrum.

A*mygdàleæ.* * *A*mýgdalus commùnis amàra, * commùnis dúlcis; * *P*érsica vulgàris, * læ`vis; * *A*rmenìaca vulgàris, * brigantìaca; *P*rùnus spinòsa var. microcárpa, doméstica var. pyramidàlis; *C*érasus durácina, Juliàn*a*, caproniàna, semperflòrens, *Mahàleb*, * Laurocérasus.

R*osàceæ.* *S*piræ`a *h*ypericifòlia, *h.* var. Plukenett*iàna*, *h.* var. crenàta; *R*ùbus tomentòsus, collìnus, glandulòsus; *R*òsa sempervìrens, s. var. microphýlla, * moschàta, stylòsa, s. var. leucóchroa, * índica, turbinàta, gállica pùmila, gállica officinàlis, gállica parvifòlia, lùtea, lùtea var. punícea, sulphùrea, pimpinellifòlia, p. var. myriacántha, p. var. inérmis, rubrifòlia, r. var. pinnatífida, glandulòsa, alpìna, a. var. pyrenàica, centifòlia, c. var. muscòsa, c. var. *pompònia*, damascèna, álba.

Pomàceæ. *C*ratæ`gus *P*yracántha, *Azaròlus*; Cotoneáster tomentòsa; *Amelánchier* vulgàris; *P*ỳrus bollwylleriàna, *s*alviæfòlia, *a*mygdalifórmis, acérba, intermèdia, Chamæméspilus; *C*ydònia vulgàris.

*G*ranàteæ.* *P*ùnica *G*ranàtum.

T*amariscíneæ.* *T*ámarix africàna, germánica.

P*hiladélpheæ.* *P*hiladélphus coronàrius.

M*yrtàceæ.* *M*ýrtus commùnis.

**Cácteæ.* *O*púntia vulgàris.

Umbellíferæ. *B*upleùrum fruticéscens, spinòsum, fruticòsum.

C*aprifoliàceæ.* *S*ambùcus racemòsa; *V*ibúrnum *T*ìnus; *C*aprifòlium baleáricum a var. of impléxum, etrúscum; Lonícer*a* nìgra, pyrenàica, alpígena, cærùlea.

C*órneæ.* *C*órnus más.

Loránthеæ. *V*íscum *O*xýcedri.

Compósitæ. *C*onỳza saxátilis, sórdida; *H*elichrỳsum *S*tœ`chas, angustifòlium; *B*uphthálmum marítimum; *A*rtemís*ia* arboréscens, corymbòsa, arra-

gonénsis, Abrótanum, paniculàta; Santolìna rosmarinifòlia, víridis, incàna; Balsamìta ageratifòlia; Stæhelìna dùbia, arboréscens.

Ericàceæ. Erìca scopària, arbòrea, ramulòsa, multiflòra, mediterrànea; Rhododéndron ferrugíneum, hirsùtum; Lèdum palústre.

Styràceæ. Stỳrax officinàle.

**Ebenàceæ.* Diospỳros Lòtus.

Oleàceæ. *O'lea europæ'a; Phillỳrea angustifòlia, latifòlia; *Syrínga* vulgàris, pérsica; ? argéntea; O'rnus europæ'a.

Jasmíneæ. Jasmìnum * officinàle, frùticans, hùmile.

Apocýneæ. *Nèrium Oleánder.

Asclepiàdeæ. Gomphocárpus fruticòsus.

Convolvulàceæ. Convólvulus saxátilis, s. var. argénteus.

Boragíneæ. Lithospérmum fruticòsum, oleæfòlium.

Solàneæ. *Lỳcium bárbarum, europæ'um; Solànum * Pseùdo-Cápsicum.

Labiàtæ. Rosmarìnus officinàlis; Sálvia officinàlis; Teùcrium frùticans, flàvum, Pòlium, capitàtum, flávicans, Pseùdo-Hyssòpus; Hyssòpus officinàlis, o. var. canéscens; Phlòmis fruticòsa, Lychnìtis; Lavándula Stœ'chas brachystàchya, S. macrostàchya, vèra, Spìca; *Saturèja* capitàta, montàna; Thỳmus vulgàris, Zỳgis, créticus, glandulòsus; ? Oríganum *majoranöìdes*, Pràsium màjus.

Verbenàceæ. Vìtex A'gnus-cástus.

Globularíneæ. Globulària Alỳpum.

Plumbagíneæ. Státice monopétala, minùta, pubéscens, fasciculàta.

Plantagíneæ. Plantàgo Cỳnops.

Chenopòdeæ. Camphorósma monspelìaca; Salicórnia macrostàchya; Salsòla prostràta; A'triplex Hálimus.

**Lauríneæ.* Laúrus nóbilis.

Thymelæ'æ. Passerìna dioíca, nivàlis, Thomàsii, hirsùta, h. var. *polygalæfòlia*; Dáphne Gnídium, Cneòrum, oleöìdes, Thymelæ'a, *Tárton-raíra*, alpìna.

Santalàceæ. Osỳris álba.

Elæágneæ. Elæágnus angustifòlia.

Euphorbiàceæ. Euphórbia spinòsa, dendröìdes; Mercuriàlis tomentòsa.

**Urtíceæ*, § *Artocárpeæ.* Mòrus álba, nìgra; Fìcus Cárica.

Ulmàceæ. U'lmus effùsa; Céltis austràlis.

**Juglándeæ.* Jùglans règia.

Betulíneæ. Bétula pubéscens; A'lnus suavèolens, víridis, incàna, cordàta, ellíptica.

Salicíneæ. Sàlix cineráscens, versifòlia, daphnöìdes, físsa, monándra, incàna, *babylónica, cæ'sia, pyrenàica, glaúca, retùsa, retùsa serpyllifòlia, hastàta; Pópulus virginiàna, dilatàta.

Cupulíferæ. Quércus Cérris, *Tòza*, pubéscens, apennìna, racemòsa, fastigiàta, I'lex, Sùber, coccífera.

* *Platàneæ.* Plátanus orientàlis, occidentàlis.

Coníferæ. Pìnus uncinàta, *Mùgho*, marítima, pumílio, Pínea, halepénsis, Larício, *Cémbra*; A'bies excélsa, pectinàta; Làrix europæ'a; Juníperus *phœnícea, Sabìna, Oxỳcedrus; E'phedra distàchya; * Cupréssus sempervìrens, * sempervìrens horizontàlis.

Smilàceæ. Smìlax áspera, mauritánica; Rúscus hypoglóssum.

Asphodèleæ. A'sparagus álbus.

* *Pálmæ.* Chamæ'rops hùmilis.

Excluding from the above enumeration the cultivated and doubtful species, there appear to be 346 trees and shrubs indigenous to France, which are not indigenous to Britain; and this number, added to that of the woody species considered as decidedly indigenous to Britain, and supposed to be also indigenous to France, would give a total indigenous ligneous flora to the latter country of 546 species. The number of indigenous timber trees which exceed the height of 30 ft. in Britain appears to be 29; those indigenous in France which exceed that height are, according to the introduction to Michaux's

Arbres de l'Amérique, 30; but, according to the *Botanicon Gallicum*, they are 34. If we add to the indigenous woody plants of France those which are cultivated or doubtful, the total ligneous flora of that country will be above 580. If to this number we add the 528 trees and shrubs of North America (see p. 126.), all of which will grow in France, it will give a total ligneous flora to that country of above 1100 species; which, considering that France possesses in her botanic gardens or nurseries all, or nearly all, the trees cultivated in the open air in Britain, is probably as near the truth as the present state of our catalogues will admit of our arriving at. In the above enumeration of the woody plants of France, we have, as in the case of the enumeration of the woody plants of the British Islands (p. 27.), included all the under-shrubs, and also all those reputed species which we believe to be mere varieties. We have included the under-shrubs, because it is difficult to draw a line of separation between those which might practically be considered as herbaceous plants, though botanically they are suffruticose; and because, in a state of culture, some of these suffruticose plants attain such ample dimensions, and such a ligneous texture, as to assume quite a shrubby character; for example, *E*uphórb*ia C*haràcias in Britain (p. 29.), and *I*bèris saxátilis in France (p. 132.). The first is seldom above 2 ft. high, in its native habitat in woods; and the second is seldom above 6 in. high, on rocks and in gravelly soil: but in dry deep garden ground the euphorbia will, in the course of a few years, form a bush between 3 ft. and 4 ft. high; and the iberis a mass above half that height. We have inserted the names of what we consider only varieties, because we have no doubt that, in most cases, they are plants tolerably distinct; because it is impossible to be quite certain of what are species and what varieties, without comparing them in different stages of their growth, and grown in the same soil, situation, and climate; and because we do not wish to set up our own opinion in this matter as absolute.

In an article by Professor Thouin, published in the *Mémoires d'Agriculture* for the year 1786, it is stated that France then possessed about 84 different species of trees, of which 24 were of the first rank in point of size, or exceeding 100 ft. in height; 16 of the second rank, or exceeding 60 ft. in height; and the remainder of the third rank, or exceeding 30 ft. in height. The names of these trees, and their arrangement according to the heights they attain, will be found in the work last quoted, and also in the *Nouveau Cours Complet d'Agriculture*, edit. 1821, art. *Arbre*. Deleuze states that France contains about 250 species of trees, of which more than three fourths are of foreign origin. (*Annales du Muséum*, tom. iii. p. 191.)

Ample as is the ligneous flora of France, it might be doubled by adding to it the trees and shrubs of Australia, of the mountainous regions of Asia, and of Mexico, Chili, and Peru. We do not speak of the whole of the trees and shrubs of these countries, because the whole are not yet known, but only of those that have been already introduced into Britain, and are treated by us as green-house plants; all of which would succeed in the open air of the southern provinces of France. Were the total number of ligneous species from these countries introduced, the number of trees and shrubs now in France would, in all probability, be quadrupled.

But though the ligneous flora of France is so much more extensive than that of Britain, yet it is far from being so equally spread over the country. Paris is considerably to the south of London, and yet there are above fifty species of evergreen trees and shrubs which are to be found in the open air in the environs of the latter city, which are not to be found in those of the former. We assert this from a comparison between a list of the trees and shrubs now (1835) growing in the *Jardin des Plantes* at Paris, furnished to us by Professor Mirbel, and the list which we have seen in MS. of the trees and shrubs now in the garden of the Horticultural Society of London. No part of France is so far north as Edinburgh; yet, while the cedar of Lebanon attains a large size far to the north of that city, and even in the Highlands of Scotland, it is killed during severe winters at Strasburg and throughout

Lorraine. Nevertheless, the fig and the vine ripen their fruit, and many deciduous foreign trees flower far better in the open air in the neighbourhood of Paris than they do in that of London. There are probably few plants that will endure the open air in the south of France, that might not be kept alive in the open air all the year in the southern extremity of Ireland, or in the neighbourhood of Penzance in Cornwall, though they would, probably, never flower at either of these places. The cause is so well known as to be hardly worth repeating: the summers in France have, proportionately to the latitude, more light and heat than those of Britain, and the winters less heat.

The first foreign trees introduced into France were, in all probability, those fruit-bearing species carried thither by the Romans; among which may doubtless be included the grape, the olive, and the fig, unless these and other fruit trees existed there at a still earlier period. In the progress of civilisation, many ages elapse before barren trees are planted either for timber or ornament. Charlemagne is praised by historians for eradicating the forests, and planting in their stead orchards and vineyards. He left a catalogue of certain plants, among which are some ligneous species, which he desired might be planted in all his gardens; but these, with the exception of the rose, were entirely for medicinal purposes. The earliest positive information that we have been able to obtain, respecting the introduction of foreign trees into France, is from the catalogue of Robin, gardener to Henry IV., which was published in 1610. It contains some few ligneous plants, such as the orange, pomegranate, the usual fruit trees, and a few of the ornamental trees and shrubs which are indigenous to Spain and Italy. Henry IV. was succeeded, in 1610, by Louis XIII.; and the botanic garden of Paris was begun by the latter king, about the year 1626, though the letters patent establishing it were not executed till 1635. Of this garden a catalogue was published by Guy de la Brosse, the first intendant, and who was also physician to the king, in 1636. In the letters patent, Vespasian Robin (son to the Robin who was gardener to Henry IV.) is mentioned as arborist to Louis XIII.; and the first Robín*ia* Pseùd-*A*càcia that was brought to Europe from North America was planted by him, in the *Jardin des Plantes*, in 1635. It is still in existence, and is now (1835) 78 ft. high. About 1815 it began to show symptoms of decay, but, the branches being lopped, the trunk has shot out with redoubled vigour. The edict of Louis XIII. also directed that pharmacy and chemistry should be taught in the garden, and illustrated by the demonstration of plants. It is said that the faculty in Paris were strongly opposed to this edict, "and especially desired that chemistry might not be taught." (*Deleuze's Hist.*, &c. p. 10.) The garden continued gradually increasing in its collection of foreign trees and shrubs, under numerous successive intendants, till 1739, when the celebrated Buffon was appointed intendant; and he, among other improvements, planted, in 1740, an avenue of lime trees, which still exists.

The principal accession to the ligneous flora of France, however, dates from the connexion of that country with North America, which may be said to have taken place about the middle of the 18th century. Of the foreign trees planted in the garden about that time, the following still exist: — Gledítsch*ia* triacánthos var. inérmis, 80 ft. high, sent from Canada by M. de la Galissonnière, the friend of Du Hamel, and governor of Canada, in 1748; *Sophòra* japónica, the first plant sent to Europe from Japan about the same time, and now 64 ft. high; *Ailántus* glandulòsa, brought from China about the same time, 68 ft. high; *J*uníperus excélsa, male, planted by Tournefort, who brought it from the Levant in 1702, 62 ft. high, with a clear trunk of 15 ft.; Gymnócladus canadénsis, male, 58 ft. high; and a number of others which will be found enumerated in a description of the Paris Botanic Garden, in the *Gardener's Magazine*, vol. xii. The oldest trees at present in the garden, and some of which appear to have been planted soon after its establishment, are, *A*'cer monspessulànum, 45 ft. high; *C*éltis occidentàlis, 68 ft. high; *Quércus* *I*'lex, 42 ft. high; *P*látanus orientàlis, 74 ft. high; and *C*èdrus Libàni, 80 ft. high. This tree is the oldest and largest cedar in France: it was given to

Bernard de Jussieu, when he visited England in 1734, by the benevolent and enlightened Peter Collinson, who had raised some plants (of which he gave Jussieu two) from cones brought from Mount Lebanon. The tree in the Paris garden produces abundance of cones, and is considered the parent of all the cedars in France: it would, no doubt, have attained a greater height, had not the leading shoot been accidentally broken off some years ago (the person who showed it to us in 1815 said by the first shot fired against the Bastile), since when it has increased only in breadth.

Deleuze, who has given a history of the introduction of plants of ornament into France, in the *Annales du Muséum*, tom. viii., states that the taste for foreign trees and shrubs passed from England into France; but that the mode of procuring them from the former country being found too expensive, a plan was devised for importing them direct from America. At the head of this design was the celebrated Du Hamel, who induced his friend, Admiral Galissonière, to send him several tons of seeds of trees and shrubs, gathered at random in North America. These were sown on a large scale on Du Hamel's estates at Le Monceau and Vrigny, and on those of his brother at Denainvilliers. They succeeded perfectly, and the plants raised were so numerous, that the botanists who afterwards examined them found among them several new species. The brother of Du Hamel the academician, who was the proprietor of Denainvilliers, appears to have had the chief care of these plantations. He also assisted his brother in the preparation of his works, and especially in the *Traité de la Culture des Terres*. The Duke d'Ayen, afterwards Maréchal de Noailles, made an extensive plantation of exotics at St. Germain en Laye, in which flowered, for the first time in France, some American walnuts, and the *Sophòra* japónica. This park was open to all amateurs. It was the Maréchal de Noailles who persuaded Louis XV. to establish at Trianon that botanic garden in which Bernard de Jussieu disposed, for the first time, plants in families according to the natural orders of his system. The maréchal was one of the first four honorary members of the Linnæan Society of London. He died in 1793 at the age of 80 years.

The Chevalier Jansen purchased in all the ports of Europe, and in foreign countries, the trees which he hoped he could acclimatise in France; these he planted in his garden at Chaillot, and afterwards distributed among botanists and cultivators. On this spot, in Paris, adjoining the Barrière de Chaillot, may still (1835) be seen superb trees, the seeds of which have produced many others, which have been spread throughout France. That illustrious magistrate and philosopher, Lamoignon de Malesherbes, acclimatised on his estate of Malesherbes a great number of foreign trees and shrubs: he was the first in France to raise fruit trees from seeds on a large scale, in order to obtain new varieties. The celebrated Lemonnier of Montreuil, near Versailles, the friend of André Michaux, encouraged the introduction of trees and shrubs more than any of his contemporaries. He was the first patron of Michaux; and though, as a physician, he was much occupied at court, he employed the greater part of his income, and the whole of his leisure, in procuring rare trees and plants for his garden at Montreuil. There, in a bottom of bog earth, he had a multitude of different species of kalmia, azalea, rhododendron, and other shrubs, among which rose up the superb stems of the Canadian lily. In the shade of spruce firs, of acacias, of tulip trees, and of magnolias, grew the undershrubs of Lapland, of Siberia, and of the Straits of Magellan. His fortune and his garden were much injured during the revolution; but he lived to see the plants which he had introduced become common among his friends everywhere. He died at the age of 84 years.

Through the kindness of M. Vilmorin we are enabled to notice the present state of the different plantations mentioned or alluded to by Deleuze, and of others made by different proprietors about the same period. The plantations of Du Hamel were chiefly cut down, or otherwise destroyed, during the revolution; those of the physician Lemonnier, at Montreuil, were entirely destroyed; those at the Trianon remain, and contain some good specimens of acacias, deciduous cypresses, pines, and cedars. The dimensions of some of the trees planted by M. Jansen have been sent us by Mr. Blaikie, who now (1835) resides at Chaillot, in a house built in the midst of them: among them are, an A'cer O'palus, 50 ft. high, with a trunk 1½ ft. in diameter; a *Sophòra* japónica, 60 ft. high; and an I'lex baleárica, 30 ft. high. A great many trees were planted in the great park at Rambouillet, about 1705, chiefly in avenues, after a design made by Le Nôtre, who died a few years before. The majority of the trees are abeles, and they have attained the height of upwards of 100 ft., though many have fallen down from age. Between the years 1787 and 1789 a great many American trees were planted in that part of the grounds at Rambouillet known as the Jardin Anglais, which have thriven well, and many of them have attained considerable size, as will appear from an account of them in the *Gardener's Magazine*, vol. xi. p. 42. and p. 205. At Thury, the property of the learned Vicomte Héricart de Thury (see *Annales d'Hort. de Paris*, tom. xi. p. 298.); at Baleine, near Moulins, the estate of Madame Aglaé Adanson, the daughter of the botanist Adanson, a descendant of Helvetius, and herself the author of *La Maison de Campagne;* at Nerac, on the estate of the Comte de Dijon; and at various other places; are collections of American trees and shrubs planted before the revolution, of which we have received notices from our correspondents, that will be found recorded, when we treat of the trees to which they refer. Near Metz, at Columbière, there are some fine trees of the pine and fir tribe, and many American trees, which were planted about the middle of the 18th century, by the Baron Tschoudi, the father of the baron of that name who was the inventor of herbaceous grafting; and who, after having been many years in the army, has retired to Columbière, and has there an extensive collection of trees and shrubs. At Mereville there are many fine American trees, which were planted by Mr. Blaikie, particularly the ailantus, which grows there to a large size, many specimens having attained the height of 80 ft. in 40 years. At St. Leu, the ailantus has also attained a similar height in the same time, with a trunk of 3½ ft. in diameter. One of the oldest magnolias in France is at Maillardière, a property in the neighbourhood of Nantes. An account is given of this tree in the *Nouveau Du Hamel*, tom. ii. p. 220.; and we have also been favoured with its history, communicated by the proprietor, M. le Comte de la Bretesche, to M. Durand de Lançon of Coutance in Normandy, and sent to us by him; and with a description of it by M. Nerrière, a nurseryman at Nantes. The particulars will be found under the head of Magnòl*ia* grandiflòra: it will be sufficient to state here, that, after having sustained many injuries during the century that it has stood at Maillardière, the tree is still in existence, and is now upwards of 30 ft. high.

Historical notices and dimensions of many other large and old foreign trees have been sent us, and they will be found under the heads of their respective genera: but we may remark that there are few large and old trees in France comparatively with what there are in England; not only on account of the great changes which landed property has undergone in France, but because trees in that country are grown principally for timber and fuel, and have at no period been considered so much articles of luxury as they have been and are in England, which is supplied with timber for building from the Baltic, and with fuel from its coal mines.

The knowledge which we in England possess respecting the culture of trees in France may be said to date from the publication of the *Traité des Arbres et Arbustes*, by Du Hamel, in 1755. Du Hamel was contemporary with Miller and Collinson of London, and was in general correspondence with British botanists, to whom, in common with botanists in other parts of the world, he, in the preface to his work, acknowledges his obligations. In the first and second editions (in 2 vols. 4to) of his *Treatise*, he describes 180 genera and nearly 1000 species, without including those small under-shrubs, such as thyme, hyssop, &c., which technically are ligneous plants; and in the third edition, known as the *Nouveau Du Hamel* (in 7 vols. folio), which was published from 1800 to 1819, nearly 2000 species and varieties are described, of which upwards of 500 are figured.

Du Hamel, in the preface to his work, says that he has treated of shrubs as well as trees, in order to lead to the pursuit of the useful through the medium of the agreeable. "There is reason," he says, "to hope that we shall be better listened to by the rich, when we propose to ornament their mansions with foreign trees, and their parks with thickets of flowering shrubs, than if we were simply to tell them to form plantations on lands unfit for producing corn or grass. If the self-love of the possessors of country seats is flattered by the view of common parks, notwithstanding the revolting uniformity of their thickets, which are only varied by differing in size or in form, is there not reason to hope that they will be much more highly gratified when the thickets in these parks offer that variety which is produced by different kinds of trees and shrubs, and which exhibits beauties suited to every season?" After giving directions for choosing flowering trees and shrubs to form thickets for the early part of spring, for the middle of spring, and for summer, he next shows the superior enjoyment to be derived from the culture of trees, to that which can be derived from the culture of herbaceous plants. "The most beautiful bed of hyacinths or tulips, when the flowers have once faded, leaves nothing but what is withered and unsightly; whilst the flowers of trees and shrubs which generally appear in spring are succeeded by the most vivid green leaves; and even in winter, after these have dropped, the ramification of the branches and spray is beautiful and interesting." (Preface, p. xviii.)

Du Hamel remarks that the greatest difficulty which opposed itself to his plan of rendering foreign trees and shrubs general in France was, that the greater part of them were not to be found for sale in the public nurseries. From this we may conclude that those who did introduce foreign trees and shrubs into France, during the 18th century, received them chiefly from abroad. Of this, indeed, there can be no doubt, since it is attested by a living witness, Mr. Thomas Blaikie, already mentioned, who is a native of Scotland, and has been settled in France as a landscape-gardener since the year 1776. In the *Encyclopædia of Gardening*, edit. 1835, p. 88., will be found a list of gardens and grounds laid out by Mr. Blaikie in France between 1776 and 1794, in which he mentions that for one place (Maison) he "went to England to buy the trees and shrubs; as at that time few trees or shrubs could be found in any nursery near Paris." Mr. Blaikie also laid out several places for the Duke of Orleans, and especially Monçeaux, the trees and shrubs for which were all procured from the Hammersmith Nursery.

The culture of foreign trees and shrubs in French nurseries appears to have commenced about the beginning of the present century, and the principal nurserymen who engaged in that branch were M. Noisette, whose father was gardener to Monsieur, afterwards Louis XVIII., at Brunoy, and M. Cels, who is now dead, and whose nursery is carried on by his son. On this subject, we refer for further details to the historical part of the *Encyclopædia of Gardening*.

Among the principal amateurs who have collected foreign trees and shrubs in France, since the commencement of the present century, may be mentioned, first and principally, the Empress Josephine, who had a collection at Malmaison of all that could be supplied from the London nurseries; the late Baron Pappenheim, who endeavoured to acclimatise many species at Coombe la Ville; Admiral Tchitchagoff, who has a fine collection at Sceáux; Monsieur de Magneville, near Caen, who is noted for his collection of pines; the Duke of Orleans (now King of the French), who has an arboretum at Neuilly, a catalogue of which was published by his gardener, Jacques, in 1833; M. Du Mont de Courset, at Boulogne; M. Soulange-Bodin, at Fromont on the Seine; M. Vilmorin, at Barres; M. le Baron Tschoudi, at Columbière, near Metz; M. le Comte de Montbron, at Clervaux, near Chatelherault; M. Ivoy, in the neighbourhood of Bourdeaux, celebrated for his collection of pines and firs; and General Lemarrais, formerly aid-de-camp to Napoleon.

This last proprietor has planted in Normandy upwards of 60,000 of the *Pinus Larício*; and, in the Forest of Fontainebleau, M. de Larminat has grafted 10,000 Scotch pines with scions of this valuable tree; an example well worthy of imitation by the proprietors of newly planted pine woods in Britain.

In the different botanic gardens in France, there are arboretums more or less extensive: the most complete is that of the Paris garden; but those of Metz, Strasburg, Montpelier, and Toulon are also good. In the latter there is a deciduous cypress which, in 35 years, has attained the height of 80 ft., with a trunk 9 ft. in circumference close to the ground. From all these gardens, and several others, we have had lists and dimensions of the trees, which will be found under the different genera.

Some of the nurseries have extensive collections: judging from their sale catalogues, those of Cels, Noisette, and Godefroy appear to be the best in Paris, or its neighbourhood; and those of Audibert of Tarascon, of the Baumanns at Bolwyller, and of Jacquemet-Bonneford at Ammonoy, seem to be the most extensive in the provinces. The Bolwyller Nursery, situate near Mulhausen, in Alsace, was established by M. Joseph Baumann (who was formerly gardener to the late Grand-Duchess of Courland), in conjunction with his brother Augustine, about the end of the last century. The establishment of M. Soulange-Bodin at Fromont, in the neighbourhood of Paris, is perhaps the most remarkable in France. It combines the most extensive system of propagation both of hardy and house plants, ligneous and herbaceous, with an institution for the instruction of young men in the science and practice of horticulture. The nature of this establishment, and its extensive collections, will be found at length in the *Annales de l'Institut de Fromont;* in the *Encyclopædia of Gardening*, edit. 1835; and in the *Gardener's Magazine*, vol. ix. p. 141., and in vol. xi.

The individuals who have exercised most influence on the introduction of foreign trees and shrubs into France appear to have been Du Hamel, André Michaux, and Du Mont de Courset.

Henri-Louis Du Hamel du Monceau was born at Paris in 1700, and died in 1782. He was proprietor of several estates, besides that from which he takes his designation. He was appointed inspector of the French navy, and was a member of the *Académie des Sciences*, and a Fellow of the Royal and other Societies in Britain, as well as of several on the Continent. He was the author of a number of works on agriculture, forest trees, fruit trees vegetable physiology, and rural economy, and of the *Elements of Naval Architecture*, all of which appeared between the years 1747 and 1768. His most important work is the *Physique des Arbres*, which contains much of what, in this country at least, has been attributed to subsequent discovery. We allude more particularly to the theory of the ascent of the sap by the wood, and its descent by the bark. Du Hamel is said to have been a man of great modesty, and to have devoted his life to agricultural pursuits, to the mechanical arts, and to his duties as a public officer. He left no child, and his estates went to his nephews. One of these, Fougeroux de Bondaroy, has published an interesting *Mémoire sur les Pins*, inserted in the *Mémoires de l'Académie des Sciences*. Vrigny, Du Hamel's principal estate, now belongs to M. Charles de Fougeroux, his grand-nephew, who not only takes the greatest care of the trees left to him by his grand-uncle, but plants extensively himself. Denainvilliers and Monceau now belong to M. de Denainvilliers, the grandson of the brother of Du Hamel du Monceau. There are on these two estates a number of very fine exotic trees, of which the present proprietors take the greatest care. The finest deciduous trees are those that were planted by Du Hamel in some marshy ground at Monceau; and some of them have attained the height of 90 ft.

André Michaux was born in the Park of Versailles, in 1746, and soon evinced a taste for agriculture and botany, which was fostered by his early patron, the court physician, M. Lemonnier. In 1777 he studied botany under Bernard de Jussieu, at Trianon; and in 1779 he was studying in the *Jardin des Plantes*. Soon after this he came to England, and returned to France with a great number of trees, which were planted in the gardens of M. Lemonnier, and of the Maréchal de Noailles, where they succeeded perfectly. He often used to take from these gardens a packet of grafts, and, going through the woods of Versailles, he would graft them on the trees already there. In 1780, he went to botanise on the mountains of Auvergne with several botanists, among whom were Lamarck and Thouin. Michaux was the most active of all of them; besides his musket, haversack, portfolio, and several specimen boxes, he carried in his pocket seeds of the cedar of Lebanon, which he sowed in favourable situations. Soon afterwards he went to the Pyrenees and travelled in Spain; and, in a short time, accompanied the nephew of the celebrated Rousseau to Persia, the latter being appointed consul to that country in 1782. He went to Aleppo, Bagdad, the Tigris, the Euphrates, Bassora, and many other places, sending home numerous seeds to Thouin, Malesherbes, and others. Persia at that time was a prey to civil wars, and Michaux, plundered of every thing by the Arabs, was supplied with the means of continuing his journey by M. de la Touche, the English consul at Bassora, though France and England were at that time at war; M. de la Touche, his biographer observes, thinking that a naturalist, who travelled for the good of humanity, ought to be protected by every nation. In this part of the world Michaux remained two years, traversing mountains and deserts from the Indian to the Caspian Sea, and proving that the provinces situated between 35° and 45° of latitude in the East have supplied most of our trees, exclusive of those which belong to America. He here verified the fact first noticed by Kæmpfer, that the male flowers of the date will keep during the year, and yet impregnate the female. He sent home sculptured ruins from the palace known as that of Semiramis, near the Tigris, and various other antiques, and objects of natural history. He returned to Paris in June, 1785, and was chosen soon after to go to the United States, to collect seeds of trees and shrubs; to establish an entrepôt for them in the neighbourhood of New York; and to get them sent from that to Rambouillet, which was destined to receive them. He was also commissioned to send home American game. He arrived at New York in October, 1785; established a garden there; traversed New Jersey, Pennsylvania, and Maryland; and, after the first year, he sent home twelve boxes of seeds, and 5000 young trees, together with some Canadian partridges, which afterwards bred at Versailles. In September, 1789, he went to Carolina, making Charleston his depôt; he traversed the Alleghany Mountains, and the whole country north and south, leaving his son at Charleston, in charge of the gardens there. From this place he sent home numerous seeds, and many hundreds of young trees. In April following, he set out to reconnoitre the sources of the Savannah; and there he discovered Magnòl*ia* auriculàta, Robín*ia* viscòsa, Azàlea n. coccínea, a Kálm*ia*, a *R*hododéndron, and many oaks and other trees not before known. The manner in which he travelled, his intercourse with the native Indians, and the accidents he met with, are extremely interesting. Whenever he discovered a new plant, it inspired him with such enthusiasm, that he no longer felt fatigue. The discovery of a new Pàv*ia*, and of the Pincknèy*a* pùbens, gave him great pleasure. He arrived at New Providence in February, 1799, and returned to Charleston in May of the same year. He afterwards visited the highest mountains of Carolina. The dangers he experienced there convinced him of the necessity of having two guides, because one might perish by the road by a thousand accidents, and it would be impossible for a European to find his way alone through the country. He found in these mountains vast tracts covered with rhododendrons, kalmias, and azaleas, and with forests of trees altogether impenetrable. War, at this time, was declared between France and England; and Michaux was afraid of being forced to leave America. He had been for a long time occupied with the idea of determining the native place of all the American trees; and also at what latitude they begin to grow rare, and where they disappear entirely: in short, he wished to ascertain up to what height they are found on the mountains, and in what soil they prosper best. He considered the native country of a tree to be that in which it is most numerous, and where it acquires the greatest height and thickness. Thus he fixed on Kentucky as the native country of the tulip tree, because it there forms vast forests, has a trunk commonly 7 ft. or 8 ft. in diameter, and grows 120 ft. high, thriving in a moist clayey soil, but not in one that is frequently inundated. In higher or lower ground, or in a different soil, these trees become smaller and more rare. It was with a view to trace in this manner the botanical topography of North America, that Michaux visited the Floridas, and went as far as Hudson's Bay. He left Charleston in April, 1792; arrived at Quebec in June of the same year; and reached Tadoussac, lat. 52°, in October, 160 leagues from any human habitation. He afterwards planned a journey to Mexico, for the benefit of the United States; but, after very many journeys, he returned to Paris by Amsterdam, where he arrived on the 3d of December 1796, after ten years' absence. He found his friends well, but was grieved beyond measure to learn that the beautiful plantations of Rambouillet, to which he had sent 60,000 young trees, had been destroyed during the revolution, and that but a very small number of the trees was remaining. Seeing that tranquillity was restored, he instantly thought of repairing the loss. After unsuccessfully endeavouring to get sent again to America, he was sent to New Holland. He stopped at the Isle of France, and was very desirous of going to Madagascar; in which island he was attacked by the fever, and he died there in November (an ix.), 1803; aged 57 years.

Michaux not only sent many new trees and shrubs into France, but he sent great quantities of the seeds of the more useful species; such as *Jùglans Páccan*, used for making furniture, and which produces the nut oil; Taxòdium dístichum (the deciduous cypress), suitable for planting in very moist soil; Nýssa caroliniàna, useful for the naves of wheels; Quércus tinctòria, for tanning and dying; and Q. vìrens, which, he says, grows rapidly on the sandy beach, exposed to the stormy winds of the ocean, where scarcely any other tree can exist, and the wood of which is excellent for ship-building; to these may be added the caryas of Pennsylvania, the tulip trees, and the American ashes, maples, &c., which, in many parts of France, are preferable to the indigenous trees. The administration of the Museum, aware of the services rendered to natural history by Michaux, ordered his bust to be placed on the façade of the green-houses, along with those of Commerson, Dombey, and other travellers who had enriched their collection.

Michaux was too fully occupied in travelling to have much leisure to write; nevertheless, he is the author of *Histoire des Chênes de l'Amérique Septentrionale*, published in 1804; a *North American Flora*, and a *Memoir on the Date Palm*. The particulars of his life, at great length, and proportionately interesting, will be found in the *Annales du Muséum*, tom. iii. p. 191.; from which this notice of his life has been abridged.

F. A. Michaux, the author of *Histoire des Arbres de l'Amérique*, after his father's death, was sent to Charleston, by the French government, to bring over the trees collected in his father's nurseries, and supplies of seeds. During his stay in America, M. Vilmorin informs us that he sent to the *Administration Forestière* larger quantities of acorns and other seeds of foreign trees, than had ever before been sent over from that country. He took that opportunity of visiting Kentucky, the Tenessee, and of penetrating nearly a thousand miles beyond the Alleghany Mountains. On his return to Europe, he published his great work on the trees of North America, and other memoirs on relative subjects; particularly one *Sur la Naturalisation des Arbres Forestières de l'Amérique*, &c. He now resides in the neighbourhood of Paris, and appears to be as enthusiastically devoted to the study of trees and shrubs as his late father. We are much indebted to him for various useful communications having reference to the *Arboretum Britannicum*.

Georges Marie Louis Du Mont, Baron de Courset, author of the *Botaniste Cultivateur*, was the Du Hamel of his time; and, after the revolution, his example and exertions contributed, even more than the influence of the Empress Josephine, to spread a taste for exotic trees and shrubs, and the formation of ornamental plantations. He was born in 1746, at the Château de Courset in the Haut Boulonnais. After having received an excellent education, he entered the army at the age of 17 years, and was soon after sent on duty to Languedoc, where the plants of the Pyrenees gave birth to his enthusiastic taste for botany. In 1784 he left the army, and devoted himself wholly to the improvement of his estate at Courset, where, in a short time, he formed by far the richest collection of plants in France, and created an establishment which ranked at that time with the gardens of Malmaison, Kew, &c. In an arid chalky soil, so unproductive as to be called a desert, M. Du Mont created an excellent kitchen-garden, a large orchard, and an ornamental garden devoted to the culture of foreign plants. These gardens will be found described in the *Annales de la Société d'Horticulture de Paris*, tom. xiv.; and in the *Gardener's Magazine*, vol. xii., from our personal inspection. It may be sufficient to state, that, though these gardens do not display fine turf, water, or fine gravel, yet they are of intense interest in point of culture; and that the collection of hardy trees and shrubs, which have attained a considerable size, is not surpassed by any in the neighbourhood of London, in regard to the number of species which it contains. The collection of herbaceous plants is formed into a series of concentric beds. The trees and shrubs are disposed in groups, according to the season of the year at which they flower, as suggested by Du Hamel; but these groups are so thinly planted that room is left for each tree and shrub to acquire its natural size and form. There is an extensive collection of fruit trees, including all the varieties that could be procured in Europe and America. The peat-earth plants are numerous, as are the hot-house and green-house plants. The hot-houses are 200 ft. and the pits 150 ft. in length. In the year 1789 M. Du Mont visited the principal gardens in the neighbourhood of London, and, on his return to his family, was immediately arrested and imprisoned by the government; but he was as promptly set at liberty through the influence with the Committee of Public Safety of his friend, the celebrated Professor Thouin. M. Du Mont published various articles in the public journals of his day; but his principal work is the *Botaniste Cultivateur, or Description, Culture, and Use of the greater Part of the Plants, Foreign and Indigenous, which are cultivated in France and England, arranged according to the Method of Jussieu*, which appeared in five volumes, 8vo, in 1802, and to which two supplementary volumes have since been added. This work has had the same celebrity in France that *Miller's Dictionary* has had in England. M. Du Mont died in June, 1824, at the age of 78 years; his estate is now the property of his daughter, Madame la Baronne Mallet de Coupigny, who has presented the green-house and hot-house plants (with the exception of the pelargoniums) to the *Société d'Agriculture de Boulogne*, but who cultivates the collection of hardy articles, and more especially the trees and shrubs, with the greatest care. The place is visited by gardeners, botanists, and naturalists from every part of the world; and no name in France is mentioned with greater respect than that of the patriarch De Courset.

SECT. II. *Of the Indigenous and Foreign Trees and Shrubs of Holland and the Netherlands.*

THE indigenous trees and shrubs of Belgium and Holland are very few, partly from the limited extent of territory, but chiefly from the great uniformity of the surface, the soil, and the climate. The only *Flora* which has been attempted of Belgium is that of Lejeune and Courtois (reviewed in *Gard. Mag.*, vol. x. p. 449.), of which only a part has been published. Holland can hardly be said to have an indigenous ligneous flora; but into that country foreign trees and shrubs were introduced as soon as they were into any other in Europe. The botanic garden of Leyden, and its earliest catalogues, may be referred to as a proof of this; but for its history, and for various details relating to the subject, we must refer to the *Encyclopædia of Gardening*, edit. 1835, p. 69. M. E. de Wael, the director of the botanic garden at Antwerp, has furnished us with a list of the indigenous trees and shrubs of that neighbourhood, which is even more meagre than we had anticipated; and another correspondent has sent us the following remarks on the subject of the Dutch ligneous flora. "Many causes combine to operate unfavourably on the growth of trees and shrubs in Holland; the numerous heavy winds in the neighbourhood of the sea, and more particularly the north-west wind, destroy the tops of the high-growing trees, break their branches, and, by shaking their trunks, loosen the roots in the soil, or blow the trees down. This is chiefly occasioned by the little depth to which the roots can penetrate into the ground; for, as soon as they reach the water, they are compelled to take a lateral direction, in consequence of which the trees soon become sickly, or are suddenly loosened from the soft, loose, humid soil by the wind. We have here much marsh and fen land. This soil, which is extremely well adapted for supplying turf or peat, is unfavourable to the growth of timber. Should much rain and strong winds occur, the trees on this soil cannot exist long enough to become old, nor even to have good trunks. In order, therefore, to prevent their being blown down, they must, from time to time, be tied or propped up: but the trouble and expense of this operation cause it to be neglected; instead of it the trees are severely lopped, and this, by causing them to throw down a greater quantity of roots into the wet substratum, only renders them more sickly. The truth of this fact may be perceived in the trees in and about most of the Dutch cities.

"When these obstacles do not occur, the trees exhibit a better growth; for the elms on the embankments in Zealand, which have their roots in a good stiff clay soil, and stand high out of the water on the dykes, endure the sea winds without sustaining any injury; besides which, these trees are judiciously pruned, and this, of course, greatly contributes to their large growth and handsome appearance. Whenever the trees are on high ground, and grow in masses, so as to protect one another from the winds, the vegetation is luxuriant, as is the case at the Hague, and in the woods near the Loo. This strikes even a superficial observer at the first glance.

"Most of the country seats in Holland were formerly near Rotterdam, along the Gravenwej, for example; and at Amsterdam, in the neighbourhood of the Diemermeer: but, as all these seats have been demolished, and new ones formed in the high sandy grounds of the provinces of Guelderland and Utrecht, not many remarkable old trees remain in the former district. Those which time might have spared have been cut down in consequence of the removal of the country seats. The *Pópulus* canadénsis [? monilífera] appears every where here in an excellent condition, and grows in places where no other tree will thrive, On the sites of some of the old country seats, especially where the ground is elevated, old tulip trees and catalpas are found, both of which bloom freely. The new country seats are laid out with much taste, in parks on a large scale, and on high grounds, in the provinces of Utrecht and Guelderland; and they are planted with exotic trees and shrubs, which afford very favourable expectations for the future. — *W.*"

But, though Holland and the Netherlands are deficient in an indigenous flora, they are by no means so in collections of plants from other countries. This is ascertained from the early catalogues of the different botanic gardens, and from the magnificent publications on botany and gardening which issued from the press of Leyden, Amsterdam, and other Dutch or Flemish cities, in the 17th century. Great part of the Netherlands, from its moist peaty soil, is particularly adapted for the growth of American trees and shrubs; and these, especially all the more showy-flowering kinds, are in popular cultivation. (See *Gard. Mag.*, vol. vii. p. 279., xi. p. 103. and p. 219.)

The best collections of foreign trees and shrubs, at present in the Low Countries, are in the different botanic gardens; in the garden of the Botanical and Horticultural Society of Ghent, in the garden of the King of the Belgians at Lacken, in the Duc d'Aremberg's seat at Enghien, and that of Sir Henry T. Oakes near Tournay. The nurseries of Holland are celebrated for their fruit trees, and those of the Netherlands for their magnolias and azaleas, and other peat-earth trees and shrubs. That of M. Parmentier at Enghien has long been remarkable for containing a great many species in a very limited space; and that of M. le Candele at Humbeque, near Brussels, contains the best collection of the genus *Cratæ*`gus in the Low Countries. Some account of this nursery, with notices of its more remarkable trees, will be found in the *Gardener's Magazine*, vol. xi. p. 537.

In the garden at Lacken there are a few fine specimens of foreign trees, particularly a tulip tree, which Mr. M'Intosh, the head gardener to the King of the Belgians, informs us, had, in 1834, a clear stem of 20 ft., the diameter of which at the surface of the ground was fully 3 ft., and at the height of 20 ft. about 2 ft.; the head was globular and compact. This tree flowered and ripened seeds every year. When Lacken belonged to France, the palace was occupied by the Empress Josephine, who brought her gardener from Paris to superintend the gardens; and the poor man, while he was gathering the seeds of this tulip tree, fell from it, and broke his neck. The trees and shrubs in the Brussels Botanic Garden have been planted within the last fifteen years: those in the Ghent Botanic Garden are much older; among them is a *Pópulus* canadénsis, 100 ft. high, and upwards of 17 ft. in circumference at 1 ft. from the ground. There are, a Robín*ia* Pseud-*A*càcia, 60 ft. high; a *Catálpa syringæ*fòlia, with a trunk between 8 ft. and 9 ft. in circumference; *V*ibúrnum *O*'pulus, 22 ft. high; two tulip trees, 70 ft. high; a Salisbùr*ia*, 23 ft. high; Gymnócladus, 70 ft. high; lime trees, 60 ft high; and Magnòl*ia* auriculàta, conspícua, and tripétala, from 20 ft. to 25 ft. high. In the grounds of Mr. Herry of Mariakirk is a *Catálpa*, 40 ft. high, with a trunk 6 ft. in circumference at 1 ft. from the ground. In the grounds of Baron le Norman, near the same town, there are, an *Ailántus* (there called the Virginian sumach), 30 years planted, and 45 ft. high; and a *J*uníperus virginiàna, 40 years planted, and 30 ft. high. The largest salisburia in Holland is in the botanic garden at Utrecht, its height being nearly 50 ft.

In consequence of the present unfriendly feeling between Holland and Belgium, we have been unable to procure notices of the trees and shrubs of the more remarkable places of either country. We know, however, that there are many fine specimens, and that though the winters are colder than those of England, yet that the summers are warmer, and that the greater part of the deciduous American trees and shrubs thrive there as well as in England. Many of the finest azaleas in our nurseries, and some varieties of magnolia and rhododendron, have been raised from seed in the neighbourhood of Ghent. The winters, however, are unfavourable for evergreens, and but few of these are to be found in any part of the country. In Smith's *Tour on the Continent*, Neill's *Horticultural Tour*, and in various articles in the *Gardener's Magazine*, will be found descriptive sketches of many of the small gardens of Holland and the Netherlands, all more or less remarkable for their American trees and shrubs. Of large places which may be compared with the country seats of England, and which might be supposed to afford many examples of fine old trees, there are comparatively few, as has been already observed above by a correspondent, a native of the country.

Sect. III. *Of the Indigenous and Foreign Trees and Shrubs of Germany, including Hungary.*

Though this portion of Europe is of great extent, yet its ligneous flora is much less varied and numerous than that of France. The reasons are, that it extends in longitude more than in latitude; that it contains few very lofty mountains, and embraces but a small latitudinal portion of the sea shore. It includes Hungary, however, which enjoys a greatly diversified surface, and an extensive range of mountains, with a ligneous flora which has furnished some fine trees and shrubs to the rest of Europe; for example, several different species of Pỳrus, and the common and Josikæa lilacs. The following enumeration, taken from Roth's *Flora Germanica*, Willdenow's *Baumzucht*, and the *Flora Hungarica* of Waldstein and Kitaibel, and kindly revised for us after it was in type by Baron Jacquin of Vienna, indicates those indigenous trees and shrubs which Germany possesses, that are not also indigenous in Great Britain and Ireland; those which are plants of cultivation, or doubtful as natives, being, as in previous lists, indicated by a star.

Ranunculàceæ. Clématis Flámmula, Atragène austrìaca.

Cistíneæ. Heliánthemum Fumàna, sp. "alpinum foliis Ajugæ" *Ruppius*, vineàle.

Polygàleæ. Polýgala Chamæbúxus.

Tiliàceæ. Tília pauciflòra, vulgàris, argéntea.

Aceríneæ. Aˋcer Pseùdo-Plátanus, platanöìdes, austrìacum, tatáricum, obtusàtum.

Celastríneæ. Euónymus latifòlius, verrucòsus.

Rhámneæ. Rhámnus alpìnus más, a. fœ′m, saxátilis, infectòrius, pumílio, rupéstris.

Staphyleàcæ. Staphylèa pinnàta.

Anacardiàceæ. Rhús Coriària, Cótinus.

Leguminòsæ. Genísta radiàta, germánica, sagittàlis, procúmbens; Cýtisus Labúrnum, alpìnus, nígricans, nígricans var. elongàtus, hirsùtus, supìnus, capitàtus, austrìacus, Weldèni; Colùtea arboréscens, * cruénta; Coronílla E′merus; Onònis Nàtrix.

Rosàceæ. Ròsa sempervìrens, fœcundíssima, gállica, alpìna, pendulìna, pyrenàica, rubrifòlia, álba; Rùbus, several ligneous species of, described in *Rubi Germanici*, Bonn, 1822; Spiræˋa salicifòlia, chamædrifòlia, ulmifòlia, mèdia *Schmidt*, oblongifòlia, incàna.

Pomàceæ. Méspilus germánica, *Amelánchier* vulgàris; Pỳrus nivàlis, bolwylleriàna, Chamæméspilus, salviæfòlia; Cydònia vulgàris, Cratæˋgus monógyna.

Tamariscíneæ. Támarix gállica, germánica.

Amygdàleæ. Cérasus *Mahàleb*, Chamæcérasus.

Philadélpheæ. Philadélphus coronàrius.

Grossulàceæ. Grossulària Uˋva críspa.

Caprifoliàceæ. Lonícera nìgra, alpígena, cærùlea, Xylósteum; Sambùcus racemòsa.

Córneæ. Córnus más.

Compósitæ. Helichrỳsum Stœˋchas.

Ericàceæ. Erìca herbàcea, Lèdum palústre, Andrómeda calyculàta; Rhododéndron Chamæcístus, ferrugíneum, hirsùtum.

Oleàceæ. *Syrínga* vulgàris, Josikæˋa.

Labiàtæ. Hyssòpus officinàlis, Teùcrium montànum.

Thymelæˋæ. Dáphne Cneòrum.

Elæágneæ. Elæágnus angustifòlia.

Euphorbiàceæ. Euphórbia sylvática, Búxus sempervìrens.

Urtíceæ. Mòrus álba.

Ulmàceæ. U′lmus effùsa.

Cupulíferæ. * Castànea vésca, Córylus tubulòsa; Quércus austrìaca, pubéscens.

Betulíneæ. Bétula péndula, pubéscens, fruticòsa, hùmilis *Schrank*; A′lnus glutinòsa var. quercifòlia, incàna, ? incàna var. mìnor víridis, ovàta, carpáthica.

Salicíneæ. Sàlix Ammaniàna, holosericea, Hoppeàna, Jacquiniàna, hastàta, bigémmis, físsa, retùsa, lanàta, depréssa, polyándra *Weigel*, Meyeriàna, mollíssima, præˋcox, ripària, serpyllifòlia, silesìaca, spathulàta, Starkeàna, uliginòsa, undulàta, Weigeliàna.

Coníferæ. Pìnus pumílio, nígricans; Aˋbies excélsa, Pícea; Làrix europæˋa, Juníperus Sabìna.

Germany may be fairly considered as possessing the ligneous flora of Britain in addition to her own, though, perhaps, there may be a few obscure species as exceptions. Supposing this to be the case, the ligneous flora of the British Isles, added to the species above enumerated, will give to Germany a flora of upwards of 360 species of indigenous trees and shrubs.

The introduction of foreign trees and shrubs into Germany, subsequently to the time of the Romans, and to that of the foundation of religious corporations, appears to have commenced with the establishment of botanic gardens. The first tree of note, of the introduction of which we have any record, is the horsechestnut, which, according to Beckmann (*Hist. of Invent., &c.*), was brought to Vienna by the botanist Clusius, somewhere about 1576. In Clusius's *Rariorum Plantarum*, &c., published in 1601, he states that in 1581 the horsechestnut was considered as a botanical rarity, but that in 1588 there was a tree at Vienna which had been brought there twelve years before, but which had not then produced bloom. M. Bon de Saint-Hilaire (*Mémoire sur les Marrons d'Inde*), however, says that the horsechestnut passed from the mountains of Thibet to England in 1550, and thence to Vienna in 1588. The first plant of Robín*ia* Pseud-*A*càcia was brought to Vienna in 1696; and the remains of it are still living in the courtyard of the palace formerly occupied by Count Fries in the Place Joseph, and now belonging to Baron Sina. The ground on which this tree stands was formerly part of the garden of a convent of nuns, founded by the widow of Charles IX. of France, whose high-steward was the celebrated Augerius, Baron de Burbeck, the friend of Clusius. The oldest foreign trees in Austria are at Schönbrunn, and consist chiefly of tulip trees, platanus, acers, juglans, robinias, and cratægus, planted about the middle of the last century, or earlier. There is a more complete collection, though not quite so old, in the grounds of Prince Lichtenstein at Eisgrub, near Nikolsburg. About the middle of the last century, this nobleman sent M. van der Schott, a German, to North America; who collected there an immense quantity of seeds, which were sown on the prince's estates in Austria, Moravia, and Bohemia, and now form immense forests.

One of the oldest exotic trees in Germany is a *T*hùja occidentàlis, near the old castle of Heidelberg, a drawing of which has been sent us by M. Ritter of Pesth, and which must have been planted when the grounds round the castle were laying out by Solomon Caus, as it bears a ticket stating that it was placed there in 1618. Caus began to plant the castle garden in 1615. (*Metzger's Castle of Heidelberg*, p. 60.) This venerable tree is at present about 30 ft. high, with a naked trunk leaning to one side, and a very few branches at top. In the gardens of this castle there are two large yew trees, which were planted in 1650, and some cornelian cherry trees (*C*órnus más), which were brought from Neuburg on the Danube in 1769. There are also some very old lime trees. The Margraves of Baden have from the earliest ages been much attached to planting and gardening. In the grounds of the ancient grand-ducal palace of Durlach near Carlsruhe, which was the residence of this family for many centuries, and a part of the palace walls of which are supposed to be as old as the time of the Romans, there is an ash 140 ft. high, and 19 ft. in circumference at one foot from the ground. A board fixed to the trunk states that it was 300 years old in 1802. As the ash is not indigenous in the neighbourhood, this ash is, probably, the oldest planted tree in Germany. At Durlach, also, there are the remains of an avenue of chestnuts: the trunks are hollow, but some of them are 120 ft. high and 15 ft. in circumference: they are thought to have been planted about the end of the sixteenth century. The road from Durlach to Carlsruhe is through an avenue of Lombardy poplars, the oldest and the highest in Germany; none of the trees are under 90 ft. high, and many of them are above 120 ft. Nothing of the kind can be more sublime. The worthy old Margrave Charles, the first Grand-Duke of Baden, who died about 1805, and one of his sons yet alive, the Margrave William of Baden, may be reckoned amongst the most zealous promoters of the planting of foreign trees and shrubs; in proof of which, we need only refer to the parks at Carlsruhe, Schwetzingen, Mannheim, and Baden Baden.

By looking into the various catalogues of the German botanic gardens, and particularly into those of Giessen, founded in 1605, and of Altorf, Nuremberg, Rientel, and upwards of twenty others, founded between the commencement of the 17th century and the middle of the 18th century, the dates of the introduction into Germany of a number of trees and shurbs may be found by the curious. It will be sufficient for the purpose of this work, if we commence with the introduction of American trees and shrubs into Germany, which took place shortly after their introduction on a large scale into France; the Argyll of Germany being Prince Lichtenstein of Eisgrub; and the Du Hamel of that country being Baron Otto von Münchausen of Schwöbbache, near Pyrmont, in Westphalia, now united to the kingdom of Hanover. This gentleman was the author of a work which obtained great celebrity in Germany in his time, entitled *Der Hausvater* (the Father of a Family). This book, which was printed in 1765, may be compared to the British encylopædias of domestic economy, except that in it agriculture, gardening, and rural affairs bear a more conspicuous part than housewifery and cookery; it contains a descriptive list of new and desirable trees and shrubs, with directions for their culture, and for their disposition in lines; arguing against clipping them into geometrical figures, as was then the mode. We are assured (see *Gard. Mag.*, vol. ii. p. 386.) that it was the reading of this work, and especially the arguments which it contained in favour of a more natural mode of disposing and managing trees and shrubs in gardens, that gave the Empress Catharine a taste for English gardening; and that it was thus the means of introducing that taste into Russia. As Hanover was at this time closely connected with England, by being under the government of the same monarch, there can be little doubt that the trees planted at Schwöbbache would be procured from the nurseries of this country. Contemporary planters were, in the Hanoverian dominions, Count Veltheim of Harbcke, and Hinuber of Marienwerder near Hanover: also the Duke of Dessau, at Wörlitz, near Dessau, in Anhalt; the Elector of Hesse, at Wilhelmshöe, near Cassel; Prince Lichtenstein, on his various estates in the Austrian dominions; and the Emperor of Austria, at Schönbrunn, near Vienna. Besides these princes, and Margraves of Baden, already mentioned, the following princes of Germany have distinguished themselves by planting foreign trees: Frederick the Great, and the present King of Prussia, Frederick William IV.; the late King of Saxony, Frederick Augustus IV.; the late King of Wurtemberg, Frederick William; the late Grand-Duke of Weimar; the late Duke Ernest of Saxe-Coburg-Gotha; Prince Prinus of Dahlberg; the Grand-Duke of Frankfort; and the late Duchess of Courland, at Loebichan in Saxony. We have received Return Papers from all these places, from which we find that some of the foreign trees first planted in them still exist. Schwöbbache is in the possession of the grandson of the author of *Der Hausvater*, and contains a number of very interesting trees. Among these are, a tulip tree, near a pond, 120 years planted, which is 80 ft. high; Nýss*a* aquática, 60 years planted, which forms a magnificent tree 40 ft. high, with a wide-spreading head and branches drooping to the ground: it is in a low moist situation, and its roots, which extend to a great distance, send up innumerable suckers; in the autumn the leaves, before dropping off, become as red as blood. The finest tree of this kind in England is on the Duke of Wellington's grounds at Strathfieldsaye; it is 30 ft. high, and, being rather in a moist situation, will probably one day rival the tree at Schwöbbache, which, in all probability, is the finest specimen of Nýss*a* in Europe. *C*órylus arboréscens (? *C*. *C*olúrna), at Schwöbbache, 100 years planted, forms a regular-headed tree, with a straight clean trunk 2 ft. in diameter. *A*'cer eriocárpum, sacchárinum, and O'palus, have been 80 years planted, and are noble trees; *Æ*'sculus Pàv*ia* and flàva are stately trees, and flower freely; Robín*ia* Pseùd-*A*càcia, 120 years planted, is a large and most picturesque tree; *U*'lmus americàna, 120 years planted, and *J*ùglans cinèrea and nìgra, 80 years planted, are noble trees. There are specimens of *C*astànea vésca, 120 years planted; and of *P*látanus orientàlis, 100 years planted. *P*ìnus *S*tròbus, 80 years planted, is 100 ft. high. Many of the old trees are in a state of decay, but the present baron still keeps up the collection by planting young ones; and he adds continually to the species, appearing to be as enthusiastically devoted to trees and shrubs, and to gardening generally, as his grandfather. At Harbeke, Count Veltheim's, there are many old foreign trees and shrubs, and a very full collection of young ones.

At Wörlitz there is what is generally considered the fullest collection of old specimens of American trees in Germany; and there they thrive remarkably well on a loamy soil, in a situation damp but not very wet. Many of these trees produce seeds, which are sent to all parts of Germany. These trees, we are informed by M. Schoch, the Duke of Dessau's garden director (and the son of the director of the same name who laid out and planted the garden), were raised on the spot, from seeds brought from England by the Duke Leopold Frederick Francis, who formed the garden between the years 1760 and 1770. A minute and accurate account of all the trees in the garden has been kindly sent us by M. Schoch, with remarks on their different degrees of hardiness, which are very interesting. It appears that the cedar of Lebanon, the common laurel, the Portugal laurel, and even the spurge laurel, require protection during every winter; and that the *T*hùja orientàlis, the different varieties of common tree box, the *C*ratæ̀gus *P*yracántha, the common holly, the *A*'cer créticum, the *Negúndo*, the *Æ*'sculus Pàv*ia* and flàva, the *Ailántus* glandulòsa, the *A*mýgdalus commùnis, the *C*éltis Tournefórt*ii*, the *C*ércis *S*iliquástrum and canadénsis, the Taxòdium dístichum, the *C*ýtisus *L*abúrnum, the *C*astànea vésca, the tulip tree, the *M*òrus álba and nìgra, the Broussonèt*ia*, the *P*látanus orientàlis, the *Caragàna* arboréscens, the Robín*ia* inérmis and viscòsa, the *Sophòra* japónica, and the *S*àlix babylónica, are all killed down to the surface of the ground when the cold is from 20° to 25° of Reaumur, but that they spring up again the following year from the root. Of this list, those which suffer the least are, the holly, the box, the laburnum, the deciduous cypress, and Robín*ia* inérmis. It is to be observed, that 25° Reaumur, which is exactly 25° below 0 Fahrenheit, is a degree of cold never experienced in any part of either Britain or Ireland, though Wörlitz is about half a degree south of London, and the whole of Scotland is farther north than any part of Germany. Wörlitz has been described and praised by the Prince de Ligne, and, till within the last twenty years, was considered one of the very first places in Germany. A description, at length, of these gardens, translated from an account of them published by the present director, Schoch, will be found in our *Encyclopædia of Gardening*, edit. 1835, p. 188.; and a particular account of the more remarkable trees that they contain is given in the *Transactions of the Prussian Horticultural Society*, vols. iv. and v.

At Schönbrunn, which was planted soon after Schwöbbache, there are several fine specimens of trees, and in particular a Salisbùr*ia*, between 50 ft. and 60 ft. high, which was received from Loddiges' Nursery, and planted there in 1781 (Jacquin *Ueber den Ginkgo*, p. 3.); a *Sophòra* japónica, between 80 ft. and 90 ft. high; Liriodéndron Tulipífera, between 70 ft. and 80 ft. high; *A*'cer striàtum, between 30 ft. and 40 ft. high, with a trunk 18 in. in diameter; *Æ*'sculus Hippocástanum, between 90 ft. and 100 ft. high; *Æ*. Pàv*ia* and *Æ*. flàva, between 30 ft. and 40 ft. high; Kölreutèr*ia*, 60 ft. high; Robín*ia* Pseùd-*A*càcia, 60 ft. high; Gledítsch*ia* triacánthos, 70 ft. high; *F*ráxinus *l*entiscifòlia and *O*'rnus europæ̀a, about 40 ft. high; *Catálpa*, between 30 ft. and 40 ft. high; *J*ùglans règia, between 60 ft. and 70 ft. high; *P*ópulus dilatàta, upwards of 90 ft. high; *P*látanus orientàlis, between 70 ft. and 80 ft. high; *A*'bies excélsa, 90 ft. high; *L*àrix europæ̀a, 60 ft. high. The cedar of Lebanon, the *L*aúrus nóbilis, the *A*'rbutus, the *D*iospýros, the Photínia, the Aristotèl*ia*, and some other trees, do not stand the open air at Vienna; and some of the magnolias, the *C*ércis, the Halès*ia*, the Nýss*a*, the fig, and several others, though they stand out, require protection.

The modern collections of trees in Germany are too numerous to be mentioned in this work, and we can only, therefore, give the names of those which we have been informed are the most complete.

In Austria there is an excellent collection in the University Botanic Garden of Vienna, under the care of Baron Jacquin, chiefly planted within the last twenty years, but a part much older. Here the macluras, male and female, stand in the open air, but require protection during winter. The salisburia here, and those in several other places near Vienna, flower annually; but they are all male plants. On that in the Botanic Garden, Baron Jacquin has had the female grafted with scions from Geneva, but they have not yet flowered. Laxenburg is more remarkable for native trees than for foreign ones; but there are some very large tulip trees, which ripen their seeds every year, and some very large purple beeches and weeping willows. There is there an *Araucària* excélsa, protected during winter by a wooden house, which has attained the height of 30 ft. in six or seven years. Baron Jacquin assures us that this is one of the finest and most picturesque specimens of this tree that can be imagined. In the park there are many fine oaks of the growth of several centuries; and a very comprehensive general collection of trees and shrubs, of from ten to forty years' growth. All these have been planted by, and are now under the care of, M. Stephen Rauch, through the exertions of whose son, M. Charles Rauch, now head gardener at Rennweg, we have received much of the information contained in this section; while another son, M. Francis Rauch, now (1835) in London, has drawn from nature the greater part of the botanical specimens by which this work is illustrated. In Austria Proper there are collections at Bruck on the Leytha, on the borders of Hungary; at Dornbach, Prince Schwartzenberg; at Hadersdorf, Baron Loudon (a view of whose mansion we have given in the *Encyclopædia of Gardening*, edit. 1835, p. 136. fig. 87.); and at the nurseries of Rosenthal, and Held in Vienna. On Kopenzel Berg, a hill in the neighbourhood of Vienna, from which there is one of the finest views in Europe, there is a tulip tree 60 years planted, which has an immense globular spreading head, though only 45 ft. high. At Bruck, the trees have been chiefly planted within the last eight or ten years; but there are some older specimens well deserving notice; such as *A'*cer striàtum, 18 ft. high in 20 years; *P*aliùrus austràlis, 18 ft. high in 30 years; and *F*ráxinus atrovìrens, 18 ft. high in 20 years. At Dornbach there is a good collection; but very few trees that have been above 40 years planted. At Hadersdorf we observed, in 1814, some fine cypress trees planted round the tomb of the great Marshal Loudon, but in the Return Paper received they are not mentioned; there is, however, a good collection, the most rapidly growing tree of which appears to be that beautiful species of elm, *U'*lmus effùsa, which, in 20 years, has attained the height of 36 ft. in poor sandy soil. The Vienna nurseries, especially that of Rosenthal, contain good collections planted within the last 20 years.

There are collections at Eisenstadt, and other residences, in Hungary, and in the botanic garden at Pesth. In Bohemia there are collections at Toeplitz, Schönhoff, and other places.

The following enumeration of the evergreen trees and shrubs, foreign and indigenous, which stand the winter at Vienna without protection has been furnished to us by Mr. Francis Rauch: —

H*ypericìneæ*. *H*ypéricum calycìnum.
I*licìneæ*. *I'*lex *A*quifòlium.
Leguminòsæ. *S*pártium *j*únceum, *C*ýtisus *s*copàrius.
Pomàceæ. Cratæ'gus *P*yracántha var. frúctu lùteo.
Araliàceæ. *H*édera *H*èlix and varieties.
C*aprifoliàceæ*. *C*aprifòlium sempervìrens.
E*ricàceæ*. Callùna vulgàris.
T*hymelæ'æ*. *D*áphne Laurèola.
E*uphorb*iàceæ. *B*úxus sempervìrens and varieties.
Coníferæ. *P*ìnus Banks*iàna*, *Cémbra*, ìnops, pumílio, *S*tròbus, rígida,

sylvéstris, *T*æ'da, variábilis; *A*'bies álba, balsamífera, *P*ícea, canadénsis; *L*àrix europæ'a, microcárpa, péndula; *C*upréssus *th*yöìdes; *Th*ùja austràlis, *c*upressöìdes, occidentàlis, orientàlis; *J*uníperus commùnis, *Ox*ýcedrus, *S*abìna and var., virginiàna; *T*áxus baccàta and var.

Smilàceæ. *R*úscus aculeàtus, andrógynus.

In Prussia the botanic garden at Berlin contains a very full collection, all planted within the last 20 years, and of which an enumeration, kindly sent us by M. Otto, will be found in the *Gardener's Magazine*, vol. xi. p. 541. In this garden Magnòl*ia* acuminàta is from 20 ft. to 30 ft. high; and several species or varieties of American ash trees, such as *F.* amér. expánsa, *F.* amer. epíptera, *F.* amer. *j*uglandifòlia, and several American oaks, are from 20 to 30 years old, and from 25 ft. to 30 ft. high. At Sans Souci there is a collection which has been planted from 10 to 50 years, and in which the tulip tree and the horsechestnut, in 45 years, have attained the height of 50 ft.; the Magnòl*ia* acuminàta, 12 years planted, is only of the height of 6 ft.; *A*'cer rùbrum, in 45 years, has attained the height of 38 ft.; and *Ailántus* glandulòsa, in 30 years, that of 20 ft. At the Pfauen Insel there is a good collection, from 40 to 50 years planted, among which we observe Magnòl*ia* acuminàta, 8 years planted, 18 ft. high; *A*'cer eriocárpum, 40 years planted, 50 ft. high; *Negúndo f*raxinifòlium, 40 years planted, 40 ft. high; *Sophòra* japónica, 9 years planted, 12 ft. high; and *P*látanus orientàlis, 42 years planted, and 55 ft. high. The soil of these three gardens is a deep sand. Prince Pückler Muskau has a collection at Muskau in Silesia, about twenty miles from Dresden; and, according to M. Hofman (*Gard. Mag.*, vol. xii.), it contains some fine tulip trees, and beeches. The public promenades and squares at Breslau are planted with trees, which are placed at a sufficient distance to allow them to attain their full size.

In Bavaria there is an excellent collection in the botanic garden at Munich, and also in the royal gardens at Nymphenburg, and in the royal nurseries. Considering the elevated situation, unfavourable climate, and very indifferent soil, the gardening exertions made at Munich, and the success attending them, surpass those of any other government of Germany. Much of this success is owing to the skill, industry, and enthusiasm, of the late and present garden directors, Charles Sckell,¶ and Charles Louis Sckell. There is an excellent collection of trees and shrubs around the old castle of Heidelberg, and some specimens of great antiquity there have been already mentioned. (p. 147.)

In Saxony there is a collection in the botanic garden at Dresden, planted since 1815. There is here, in the royal gardens, the largest standard fig tree in Germany; it is 60 ft. high, with a trunk 18 in. in diameter at one foot from the ground. Every year it bears some thousands of figs; but it requires protection by a boarded house during winter. In the royal gardens at Pilnitz are the largest and oldest camellias in Germany; they form bushes about 20 ft. high, the stems 4 in. or 5 in. thick; and they are protected in winter by a wooden house, in the roof of which are small windows. In the garden of Lieutenant Weber, at Dresden, there is an excellent collection of foreign hardy shrubs, as well as some enormously large fig trees, which are known to be above 200 years old. The beautiful road from Worlitz to Dresden is bordered by magnificent oaks, only equalled in Germany by those of the finest parts of the Black Forest.

In Hanover, at Göttingen, there is an excellent collection under the care of our esteemed friend and correspondent M. Fischer, one of the most active and zealous garden directors in Germany; there are, also, the collections at Schwöbber, and the other places already noticed. At Herrenhausen is a rich collection of trees and shrubs, planted in 1834 by M. Wendland. At Haroke, near Helmstadt, there is a very interesting garden laid out in different scenes, which are called Canada, Virginia, &c., from the native countries of the trees planted in them; thus forming a kind of geographical garden. (See (*Gard. Mag.*, vol. xi. p. 647.) Among these trees are a very large salisburia, and many large liriodendrons. One part of the ground is laid out and planted with *P*ìnus *Cémbra*, so distributed as to resemble a native forest. Baron Hake, at Ohr, near Hamelen, on the river Weser, has formed part of a forest on a hill (Ohr berg) into a park, in which some American trees grow perfectly well: the soil is a sandy loam. There are, also, many large American trees in the garden of Baron Steinberg, at Bruggen, on the road from Hanover to Ernbeck. At Eldagsen, a small village about four miles from Hanover, there are many large trees, which were planted about the same time as those at Schwöbber.

In Wurtemberg there are good collections at the Palace of Rosenstein, and in the royal nurseries, but scarcely any evergreens. The Palace of Solitude (at one time so celebrated for its gardens) is surrounded by a natural forest, which extends many miles in every direction; the trees are chiefly beech, oak, and the trembling poplar, some of which have attained a great size. (See *Encyc. of Gard.*, edit. 1835, p. 158. to p. 169.)

In Baden, at Carlsruhe, there was a very good collection under the care of the late excellent M. Hartweg, author of *Hortus Carlsruhanus;* this collection is still in existence under the care of M. Held, and has since received occasional additions. There is also a very good collection in the celebrated garden of Schwezingen; which, with all the most remarkable gardens of Germany, will be found described at length in the last edition (1835) of our *Encyclopædia of Gardening*. At Donaueschingen (the source of the Danube) there is a tolerable collection, and some specimens of abies, populus, and liriodendron, of considerable size. In the Black Forest, which surrounds this place, are the largest oaks and silver firs in Germany. In 1828, we spent an entire day examining and admiring these noble trees, many of which we estimated at upwards of 100 ft. in height. All the trees and shrubs enumerated above as enduring the open air at Vienna, without protection during winter, do so at Carlsruhe; with the following additional species, which have been pointed out to us by M. Hartweg, son of the late director of the grand-ducal gardens; a highly educated young gardener, now in the employment of the London Horticultural Society.

Leguminòsæ. *U*ˋlex europæˋa, nàna.

T*amariscíneæ.* *T*ámarix gállica, germánica.

Araliàceæ. *H*édera canariénsis.

E*ricàceæ.* Dabœˋ*cia* (Menziès*ia*) *p*oliifòlia; Andrómed*a* axillàris, Catesbæˋ*i*, speciòsa var. pulverulénta; Gaulthèr*ia* procúmbens; Kálm*ia* angustifòlia, glaúca, latifòlia; *R*hododéndron catawbiénse, caucásicum, máximum, pónticum and varieties, ferrugíneum; *I*ˊtea virgínica.

*Bignoni*àceæ. Bignòn*ia* capreolàta.

M*yricàceæ.* *M*yrìca cerífera.

Coníferæ. *C*èdrus Libàni.

E*mpétreæ.* *E*ˊmpetrum nìgrum, Corèma álbum.

In Hesse Cassel, the garden of Wilhelmshoe, at Cassel, contains a good collection, chiefly planted within the last 20 years; but some of them have been planted 60 years. From the particulars with which we have been obliged by the director of the garden, M. Claus, we find that the tulip tree here, 60 years planted, has only attained the height of 20 ft.; and the ailantus, 60 years planted, is under 30 ft. The only evergreens of which we have had returns are, the common pines and firs, and *C*upréssus *t*hyöìdes.

In Nassau, in the Grand-Ducal Botanic Garden at Biebrich, there is a good collection, distributed thinly all round the margin of the garden; and, this garden being of very great length in proportion to its breadth, the space afforded to each tree is such as will enable it to attain a very considerable size. A catalogue of this garden, accompanied by a plan, was published in 1831. We may remark here that the names in this catalogue, as in those of most German catalogues of modern date, generally correspond with the names in the catalogue of Messrs. Loddiges; the reason is, that the collections which have been formed in Germany, during the last 50 years, have, for the most part, been either procured direct from Hackney, or from German nurserymen who have purchased their foreign trees and shrubs there.

In the dukedom of Mecklenburg, Baron Laffert has a very rich collection of trees and shrubs. Some magnolias grow here in the open air without any kind of protection.

In Anhalt there are few collections besides that of Wörlitz, already noticed (p. 149.); but the cemetery at Dessau, one of the finest in Germany, contains a number of good foreign trees.

In the free townships there is, at Frankfort, a considerable collection in the public garden formed on the ramparts from the plan of M. Zeyer, and planted by M. Rinz. (See *Encyc. of Gard.*, edit. 1835, p. 195.) There are, also, collections of trees, more or less extensive, in the public gardens belonging to the other free towns. On the ramparts of Bremen there is an excellent collection of poplars, of all the different species and varieties that will endure the open air in that part of Germany, of the height of from 60 ft. to 80 ft. This collection was made with great care by the late Professor Mertens.

The principal nurserymen in Germany are, Messrs. Booth of Hamburgh, who have an excellent collection of trees in their grounds at Floetbeck; M. Hayen, at Erfurt; M. Schelhaus, at Cassel; M. Seidel, at Dresden; M. Rosenthal, and M. Held, at Vienna; M. Mathieu, at Berlin; and M. Rinz, at Frankfort.

In Germany, as in France, there are very few evergreen trees and shrubs, either in the indigenous or introduced flora, as compared with the ligneous flora of Britain. The cedar of Lebanon requires protection all over Germany, except in the warmest parts of Hungary and Baden; the common laurel, the Portugal laurel, the arbutus, the rhododendron, the kalmia, the laurustinus, the furze, and even the Irish ivy, can only endure the winters in Germany in very favourable situations.

SECT. IV. *Of the Indigenous and Foreign Trees and Shrubs of Scandinavia, including Denmark, Holstein, Sweden, Lapland, Finland, Iceland, Greenland, and the Faroe Islands.*

FROM the northern latitude and severe climate of these countries, it will not be expected that their ligneous flora, either indigenous or introduced, can at all equal that of Britain. The total number of ligneous species enumerated by Retzius, in his *Flora Scandinavia*, edit. 1795, amounts to 133 species, and of that number there appear to be a few, enumerated below, which are not natives of Britain. The most important of these are the A`cer platanöìdes, or Norway maple, and the common spruce fir.

Rosàceæ. Ròsa *Eglantèria*, cinnamòmea, fluviàlis *Retzius;* Potentílla fruticòsa; Spiræ`a salicifòlia.

Pomàceæ. Cratæ`gus monógyna *Jacq.*

Leguminòsæ. Genísta germánica, Coronílla E'merus.

Salicíneæ. Sàlix hermaphródita, hastàta, myrtillöìdes, depréssa, lappònum.

Aceríneæ. A`cer platanöìdes.

Cistíneæ. Heliánthemum œlándicum, Fumàna.

Tamariscíneæ. Támarix germánica.

Ericàceæ. Phyllódoce taxifòlia (Menzièsia cærùlea); Andrómeda tetragòna, hypnöìdes, calyculàta; Rhododéndron lappónicum; Lèdum grœnlándicum, not found in the limits of Sweden.

Caprifoliàceæ. Lonícera Xylósteum, cærùlea; Linnæ`a boreàlis.

Coníferæ. A`bies excélsa; Juníperus commùnis mìnor, commùnis arboréscens.

On looking at the *Flora Danica*, *Flora Suecia*, and *Flora Lapponica*, we find the number of ligneous species gradually diminish as we advance northwards, till, in the Faroe Islands, a flora of which has been given by W. C.

Trevelyan, Esq., the total number of ligneous plants consists only of fifteen species, which are all under the height of 3 ft. They are as follow: —

R*osàceæ*. *R*òsa.
E*mpétreæ*. *E'*mpetrum nìgrum.
E*ricàceæ*. *E*rìca cinèrea, Callùna vulgàris, Chamælèdon procúmbens.
V*accinièæ*. *V*accínium *V*ìtis-Idæ'a, uliginòsum, and Myrtíllus.
S*alicíneæ*. *S*àlix càprea, *p*hylicæfòlia, hastàta, lanàta, árctica, and herbàcea.
Coníferæ. *J*uníperus commùnis.

The Faroe Islands, Mr. Trevelyan, who resided on them for some years, informs us, are twenty-two in number, and are situated between 61° 26′ and 62° 25′ N. lat., and 6° 17′ and 7° 43′ W. long. Only seventeen of them are inhabited. Most of them may be compared to the summits of mountain ridges, rising out of the ocean to the height of nearly 3000 ft. There is usually deep water close to the land, which often rises in perpendicular cliffs to a height of 1200 ft. and 1500 ft., and, in one instance, to above 2000 ft. The climate is generally mild, but damp. It is not subject to extremes of temperature; the mean of mild years being 49°, and of cool years 42°. The highest temperature during four years was 72°, and the lowest 18°. The only corn cultivated is the Scotch bigg, and that does not always ripen. In the peat bogs occur the remains of birch trees; but these do not now grow in the islands, having probably been extirpated by being used as fuel.

A general view of the arboricultural flora of Sweden, considered geographically and geologically, has been prepared for us by the celebrated botanist Dr. Agardh, formerly professor of botany at Lund; and we have received another for the whole Scandinavian peninsula, by Professor Schouw of Copenhagen; but, as these communications, though excellent in themselves, are somewhat too long for insertion in this work, we have transferred them to the pages of the twelfth volume of the *Gardener's Magazine;* contenting ourselves here with some abridged extracts from them, relative to the introduction of foreign trees into the Scandinavian peninsula.

Foreign trees and shrubs have been introduced into Denmark and Sweden, chiefly in the different botanic gardens, and in the grounds of the royal residences at Copenhagen and Stockholm, and of the wealthy proprietors in the neighbourhood of these capitals, and of the other large towns. There are, however, but few American trees or shrubs to be found as standards in the neighbourhood of either capital. The largest indigenous trees in Denmark are beeches, of which one, in the park of Jägersborg, exceeds 100 ft. in height. The white poplar also grows to the height of 100 ft., and the oak and Scotch pine attain a great size. At Dronninggaard, near Copenhagen, the tulip tree, in 40 years, has attained the height of 80 ft., and also the horse-chestnut. The Robín*ia* Pseùd-*A*càcia, at the same place, has, in 40 years, attained the height of 60 ft.; but the Gledítsch*ia* triacánthos, in the same period, only 16 ft. *O'*rnus europæ'a is 30 ft. high; *A'*bies *P*ícea, the silver fir, 100 ft.; and *A'*bies canadénsis, only 6 ft.; while *P*ìnus *S*tròbus becomes a considerable tree. At the royal gardens of Rosenberg, near Copenhagen, there is an excellent collection, planted for the most part in 1831, 1832, and 1833, a list of which, with their dimensions, has been kindly sent us by the royal gardener there, M. Jens P. Petersen. On looking it over we find that it contains nearly all the species procurable in the London nurseries. Among the hardy trees, however, the cedar of Lebanon is not included, nor the common laurel. In the garden of Christianholme, near Lolland, there are some good trees, the dimensions of which have been sent us by the curator, M. Gentz. Here the tulip tree and the *A'*cer dasycárpum are 40 ft. high; the robinia, 36 ft.; the gleditschia, 24 ft.; the *O'*rnus europæ'a, 24 ft.; the walnut, 30 ft.; the Lombardy poplar, 80 ft.; the purple beech, 30 ft.; the platanus, 80 ft.; and the larch, 75 ft.

In Sweden, according to Dr. Agardh, "the central points from which foreign trees and shrubs have spread over the whole country are, Lund, Upsal, Stockholm, and Gottenburg. Some of these introduced trees, such as *L*àrix europæ̀a, *Æ̀*sculus Hippocástanum, some species of *P*ópulus, and *À*cer Pseùdo-*P*látanus, thrive here as well, and are almost as common, as the indigenous trees. Of fruit trees, all that are cultivated north of the European alps grow in Scania; such as peaches, apricots, grapes, almonds, chestnuts, walnuts, and mulberries (*M*òrus álba and nìgra), and they appear to suffer very little from the cold: even figs (*F*ìcus Cárica) have lived through some winters. The Japanese shrubs endure the climate of Lund tolerably well, as Kérr*ia* japónica, and Broussonèt*ia*, which last had grown to the size of a large tree, one third of a foot in diameter, in the botanic garden at Lund, till accidentally (and not, as it seemed, by the severity of the winter) it died off. But very few evergreens endure our winters; not even the *Aúcuba* japónica, or the Portugal or the common laurel; and the holly with great difficulty. The few exotic evergreens that we do possess are, *B*úxus sempervìrens and var., *C*ratæ̀gus *P*yracántha, *V*ínca sp., and the Coníferæ.

"Many of the Swedish noblemen have contributed much to the spreading of foreign trees throughout Scandinavia, by planting them on their estates; as, for example, His Excellency Count Trolle Wachtmeister, His Excellency the Count de la Gardie, Baron Gyllenkrook, and several more, in Scania; also, the late M. Thouse, in West Gotha; His Excellency Count Trolle Bronde, in Upland; M. Wares, in Warmeland; &c. The *M*òrus álba thrives well, even as far as Upsal; and, under the protection of our adored Crown Princess Josephine, there is a large plantation of it at Stockholm, for the purpose of breeding and feeding silkworms; and the silk obtained from them is not only abundant in quantity, but the quality of it is excellent. At Stockholm there are several patrons of arboriculture, as regards the cultivation of foreign trees. Some of the most distinguished are, the Counsellor de Pontin, M. Siefwerstrale, and M. Rofenblad; the latter of whom has the richest collection of plants that can be found in any private garden in Scandinavia. There are two public plantations of foreign trees at Stockholm; viz. that of the Forest Institute, directed by M. Ström, and that of the Agricultural Academy; both of which possess a great number of foreign trees.

"As to the height of the trees, I can find no difference between those in Scandinavia and those in Germany, or in any other country north of the European alps. The beeches and oaks are as well grown trees with us as they are in Germany. The sweet chestnut tree and the Robín*ia* Pseùd-*A*càcia are somewhat smaller, as they have hitherto never attained a greater height here than 50 ft.; but others, as the æsculus, the foreign tilias, populus, the foreign pines, juglans, &c., may be compared with those of Germany. The *P*látanus occidentàlis attains a height of 30 ft. The *P*látanus orientàlis does not stand in the free ground in our garden. The tulip tree is perfectly hardy. We have not yet tried the cedar of Lebanon in the open air; but we hope to be able to do this at some future time. — *C. Agardh. Lund, Sept.* 23. 1835."

SECT. V. *Of the Indigenous and Foreign Trees and Shrubs of the Russian Empire.*

THIS immense country, extending in latitude from the Crimea to the Gulf of Bothnia, and in longitude stretching far into Asia, exhibits less variety of surface than might be expected from its great extent. With the exception of its southern and Asiatic provinces, its ligneous flora differs little from that of Germany and of the north of France; but the Crimea, the mountains of Caucasus, the Circassian alps, and the shores of the Caspian and Black Sea, are rich in the productions of warmer climates, and include as indigenous many of the more important trees and shrubs of Switzerland, Italy, and Greece, besides a great number peculiar to themselves. On this account, though the Asiatic portion of the Russian flora has been very imperfectly explored, the number of species that Russia possesses that are not indigenous in Britain is considerable, as appears from the following enumeration, taken from Pallas's *Flora Rossica*, published in 1788.

Ranunculàceæ. Atragène austrìaca, ochoténsis.

Laurìneæ. Laúrus nóbilis.

Berberídeæ. *Bérberis* sibírica.

Philadélpheæ. Philadélphus coronàrius.

Grossulàceæ. *Ribes* americànum, procúmbens, Diacántha.

Granàteæ. Pùnica Granàtum.

Elæágneæ. Elæágnus angustifòlia, orientàlis.

Thymelæ`æ. Dáphne alpìna *L.* (altàica *Pallas*), caucásica, póntica.

Rosàceæ. Ròsa alpìna, davùrica, caucásica, parvifòlia; Spiræ`a chamædrifòlia, betulifòlia, trilobàta, thalictröìdes, crenàta, alpìna, salicifòlia, altàica, sorbifòlia.

Pomàceæ. Pỳrus salicifòlia, præ`cox, baccàta; Cratæ`gus sanguínea, monógyna rùbra, nìgra, *Azaròlus*, Pyracántha; Méspilus germánica.

Amygdàleæ. Amýgdalus nàna, commùnis; Pérsica vulgáris; Armenìaca vulgàris, sibírica; Cérasus Chamæcérasus, prostràta, *Mahàleb*, Laurocérasus; Prùnus caucásica.

Leguminòsæ. Cýtisus austrìacus, hirsùtus; Halimodéndron argénteum; *Caragàna Altagàna*, frutéscens, spinòsa, pygmæ`a; Colùtea cruénta, Calóphaca wolgárica.

Urtíceæ. Fìcus Cárica.

Ulmàceæ. U'lmus læ`vis, pùmila; Céltis austràlis.

Cupulíferæ. Quércus Cérris.

Betulíneæ. Bétula davùrica, fruticòsa; A'lnus incàna.

Salicíneæ. Sàlix cáspica, monándra, Gmelìni, serótina, sibírica, myrtillöìdes, arbutifòlia, divaricàta, lappònum, lanuginòsa, hastàta, rhamnifòlia, berberifòlia, retùsa, árctica; Pópulus balsamífera.

Platàneæ. Plátanus orientàlis.

Jugländeæ. Jùglans règia.

Euphorbiàceæ. Búxus sempervìrens.

Rhámneæ. Rhámnus alpìnus, däùricus, carpinifòlius, Erythróxylon, Erythróxylon var. β, ? angustíssimus *Dec.*; Zízyphus vulgàris, Paliùrus aculeàtus.

Staphyleàceæ. Staphylèa pinnàta.

Acerìneæ. A`cer platanöìdes, Pseùdo-Plátanus, tatáricum.

Vìtes. Vìtis vinífera.

Anacardiàceæ. Pistàcia Terebínthus, Rhús Coriària, Cótinus.

Tamariscíneæ. Támarix Pallàsii, germánica.

Nitrariàceæ. Nitrària Schóberi, sibírica.

Chenopòdeæ. Salicórnia, 4 species; Anábasis tatárica; Salsòla, 7 species; Suaèda microphýlla.

Ericàceæ. Lèdum palústre; Andrómeda calyculàta, lycopodiöìdes, hypnöìdes, ericöìdes, tetragòna, Bryánthus, Stelleriàna; Phyllódoce cærùlea; Azàlea póntica; Rhododéndron lappónicum, pónticum, chrysánthum, caucásicum, däùricum, camtscháticum.

Vacciniëæ. Vaccínium Arctostáphylos.

Caprifoliàceæ. Lonícera tatárica, Xylósteum, alpígena, caucásica, altàica; Vibúrnum däùricum, orientàle; Sambùcus racemòsa.

Córneæ. Córnus más, álba.

Asclepiàdeæ. Períploca græ`ca.

Ebenàceæ. Diospỳros Lòtus.

Jasmíneæ. Jasmìnum frùticans, officinàle.

Oleàceæ. O`lea europæ`a.

Solàneæ. Lýcium tatáricum.

Verbenàceæ. Vìtex A'gnus-cástus.

Coníferæ. Pìnus *Cémbra*; A`bies excélsa, Pícea; Làrix europæ`a, Cupréssus sempervìrens; Juníperus davùrica, lýcia, Sabìna, phœnícea; E'phedra polygonöìdes.

Smilàceæ. Rúscus hypophýllum.

Corymbíferæ. Pallàsia Pterocóccus *L.*

The trees and shrubs which are to be found in the neighbourhood of St. Petersburg, and on the shores of the Gulf of Finland, are as follows: — *P*ìnus sylvéstris, *A*'bies excélsa, *B*étula álba, *A*'lnus glutinòsa, *P*ópulus trémula, different *S*álices, *J*uníperus commùnis, *S*órbus aucupària, *C*érasus *P*àdus, *R*hámnus Frángula, *T*ília europæ'a, *P*ỳrus *M*àlus, *A*'cer campéstre.

The introduction of foreign trees and shrubs into Russia may date from the commencement of the reign of Catharine, or about the year 1768; when, from reading *Der Hausvater*, that empress determined on having the gardens at Tzarsco Celo laid out in the English manner. From the severity of the climate, not many foreign species can endure the winters, either there or any where else, in the neighbourhood of Petersburg; nevertheless, with laudable ambition, many species have been tried at all the imperial residences. The trees and shrubs generally used for planting the Petersburg gardens are of the following genera: —

*A*quifoliàceæ. *I*'lex.
Leguminòsæ. *C*ỳtisus, *Caragàna*, *G*enísta, *S*pártium.
R*osàceæ.* *R*òsa.
§ *Potentílleæ.* Potentílla.
§ *Spiræ̀æ.* *S*piræ'a.
A*mygdàleæ.* *A*mỳgdalus.
Pomàceæ. Cratæ'gus, *M*éspilus, *P*ỳrus.
Araliàceæ. *H*édera.
Caprifoliàceæ. *S*ambùcus, *L*onícera, *V*ibúrnum.
C*órneæ.* *C*órnus.
O*leàceæ.* *Syrìnga.*
S*olàneæ.* *L*ỳcium.
E*læágneæ.* *H*ippóphae.
E*uphorbi*àceæ. *B*úxus.
Cupulíferæ. *F*àgus.
Amentàceæ. *C*órylus.
T*axàceæ.* *T*áxus.
C*oníferæ.* [*P*ìnus.]

The *P*ìnus sylvéstris and the *A*'bies excélsa attain a considerable size in the elevated light soil at a few miles' distance from St. Petersburg; though in the bog by which that city is surrounded their size is but small. In the Taurida Palace gardens, in the city, the *U*'lmus campéstris has attained the height of 49 ft.; the *C*érasus *P*àdus, and the *S*órbus aucupària, of 21 ft.; the *F*ráxinus excélsior, of 35 ft.; the *S*àlix frágilis, 49 ft.; the *A*'lnus glutinòsa, 56 ft.; the *B*étula álba, 68 ft.; the *L*àrix europæ'a, 63 ft.; and, what appears to us remarkable, the *Q*uércus rùbra, also 63 ft. In the summer gardens of St. Petersburg, planted during the reign of Peter the Great, there is a lime tree 79 ft. high; and a common elm and Norway maple, each 70 ft. high.

On the shore of the Gulf of Finland, opposite the village of Strelna, the small island of Sosnovy Rosha is entirely occupied with tall Scotch pines, from 3 ft. to 5 ft. apart; among which, one has attained the height of 77 ft., and another of 65 ft. In the imperial garden at Strelna is a common English elm, 60 ft. high, the branches of which cover a space of 56 ft. The measurements of a number of trees, grown on the estate of Madame Constantinoff, at Rudets, near St. Petersburg, have been sent us by one of the imperial gardeners, with the following introductory remarks: — "The woods consist principally of pines and firs; the surface of the ground is covered with long moss (*H*ýpnum); the surface stratum is black earth, 6 in. deep; below this a stratum, 4 in. deep, of sand mixed with earth; and under this is clay. The greater number of the trees consists of *P*ìnus sylvéstris, *A*'bies excélsa, and *B*étula. The pines grow with clean straight stems, of from 50 ft. to 70 ft. high, to where the branches commence, which extend from 14 ft. to 20 ft. more, making the whole height of the tree nearly 100 ft. No care is taken of the woods; the young trees spring from self-sown seed; and the strong plants are suffered to overshadow and destroy the weak ones, till the former at last become large trees. Where the *P*ìnus sylvéstris grows singly, and has plenty of space to spread its branches, the lower arms are not rubbed off or killed when young, as they are where the tree grows in a thick wood, but they form immense limbs; the consequence is, that the trunk of the tree becomes full of large knots, and, though it is more in diameter, it is less in height; the timber, of course, being of little use but as fuel." Some of the largest specimens of *P*ìnus sylvéstris in these woods, supposed of 213 years' growth, measured in height 99 ft. and 85 ft.; others, 65 years old, 78 ft. and 64 ft.; one, supposed to be 108 years old, 106 ft.; one, 95 years old, 85 ft.; 120 years old, 99 ft.; 232 years old, 113 ft.; this last tree had a trunk 31 in. in diameter at 1 ft. from the ground; the diameters of the others varied from 26 in. to 12 in., 8 in., and even 7 in. *B*étula álba, in the same wood, at 40 years old, was 71 ft. high; at 85 years, 85 ft.; and at 75 years, 70 ft. and

64 ft. The *A'*lnus glutinòsa, at 44 years, was 67 ft. in height. A *P*ópulus trémula, of 78 years' growth, was 74 ft.; and one of 90 years' growth was 71 ft.; the diameter of the trunk being in the latter case 14 in., and in the former 12 in. It may be observed of all these trees, that they have stood very close together, so that the diameter of the trunk is generally very small in comparison with its height.

The following trees and shrubs are found to stand the open air in the neighbourhood of Moscow. By comparing this list with that given above of the trees and shrubs which will stand the open air in the neighbourhood of St. Petersburg, the reader will be able to ascertain what are the very hardiest trees and shrubs of temperate climates, and of high latitudes.

T*iliàceæ.* *T*ília europæˋa. "*T*ília europæˋa probably means *T.* parvifòlia, which appears the most northern species or variety of *T*ília. The *Flora Mosquensis* gives *T.* parvifòlia 'in sylvis, nemoribusque;' *T.* grandifòlia, only 'ad pagos, in hortis;' while *T.* europæˋa is not named at all. — *H. C. Watson. Feb.* 6. 1836."

A*cerìneæ.* *A*ˋcer Pseùdo-*P*látanus.

Hippocastàneæ. *Æ'*sculus Hippocástanum.

C*elastrìneæ.* *E*uónymus europæˋus and verrucòsus.

R*hámneæ.* *R*hámnus cathárticus and Frángula.

Leguminòsæ. *C*ýtisus *L*abúrnum, capitàtus, ruthénicus, sessilifòlius, nígricans; *Caragàna* frutéscens, acutifòlia [?], obtusifòlia [?], spinòsa.

A*mygdàleæ.* *A*mýgdalus nàna; *P*rùnus doméstica, spinòsa; *C*érasus durácina, àvium, *P*àdus.

Pomàceæ. *S*órbus aucupària, doméstica, *A*ˋria; *C*ratæˋgus *O*xyacántha, tomentòsa, grandiflòra lùcida, coccínea ovalifòlia, monógyna; Cotoneáster vulgàris; *P*ỳrus melanocárpa, commùnis, *M*àlus, baccàta, *p*runifòlia, ovàlis.

C*aprifoliàceæ.* *C*órnus álba, sanguínea, serícea; *S*ambùcus racemòsa, nìgra; *V*ibúrnum *O'*pulus, *r*òsea, Lantàna.

O*leàceæ.* *F*ráxinus excélsior, álba, tomentòsa.

E*læágneæ.* *H*ippóphae Rhamnöìdes, *E*læágnus songárica.

U*lmàceæ.* *U'*lmus effùsa, campéstris, satìva.

S*alicíneæ.* *S*àlix babylónica, and almost all the other species; all the species of poplar except dilatàta.

B*etulíneæ.* *A'*lnus incàna, glutinòsa; *B*étula álba, nàna, nìgra.

Cupulíferæ. *C*órylus *A*vellàna, cornùta; *Q*uércus *R*òbur. "Both the British oaks (*Q. R*òbur and sessiliflòra) are included in the *Flora Mosquensis.* — *H. C. Watson. Feb.* 6. 1836."

Coníferæ. *J*uníperus *S*abìna, *T*hùja occidentàlis; *P*ìnus sylvéstris, *Cémbra*, *S*tròbus, montàna; *A*ˋbies excélsa, álba, *Píchta*, canadénsis, nìgra, rùbra, balsamífera; *L*àrix commùnis.

Deleuze mentions Dimidow as having the richest botanic garden in Russia, and as having sent to the Paris garden many fine trees and shrubs, natives of Siberia. Among these were, *Caragàna Altagàna*, *C.* pygmæˋa, and Halimodéndron argénteum. The catalogue of Dimidow's collection was published in 1786, soon after which the proprietor died, and the collection was dispersed. The richest collection in 1814 was that at Gorinki, which suffered greatly when the French were in possession of that part of the country, and has since been destroyed or neglected. The gardens in the neighbourhood of Moscow, though they do not contain a great number of ligneous species, are not without some of very considerable size; more especially the common or Scotch pine, the birch, the white poplar, the ash, the common elm, and the white willow. This last tree, in the south of Russia, is planted in straight lines of apparently interminable lengths, to indicate the road across those immense steppes, over which a traveller may proceed a whole day without seing any other trace of civilisation than these trees and the post stations. At least we found this to be the case in 1814. M. Fintelman, one of the imperial gardeners at Moscow, visited Britain during the summer of 1835, with a view to add to the collection under his care; and he informed us that the proprietors of gardens in his neighbourhood are most assiduous in the improvement of their grounds, and are most anxious to plant in them every tree and shrub that they think at all likely to endure the climate.

Warsaw, being three degrees further south than Moscow, enjoys a climate better adapted for the introduction of foreign trees and shrubs; and a considerable collection was introduced into the botanic garden there soon after the general peace. On looking over the catalogue of this garden, published by M. Schubert in 1824, we find that the greater number of trees and shrubs which stand the open air in Berlin also do so at Warsaw; but that the Portugal laurel, the common laurel, the laurustinus, the rhododendron, the tree box, the furze, and the broom, are not hardy; and that the ivy and the common holly require protection during severe winters. Magnòl*ia* tripétala and acuminàta stand against a wall, with protection, as does also the tulip tree. *C*ratæˋgus punctàta, orientàlis, Crús-gálli, *p*yrifòlia, coccínea, cordàta, glandulòsa, nìgra, tanacetifòlia, *O*xyacántha, melanocárpa, and *p*runifòlia, are all tolerably hardy.

Cracow is upwards of two degrees farther south than Warsaw; and it is not much higher above the level of the sea, since the Vistula passes through both cities, and there is not the slightest waterfall on that river between Cracow and its mouth at Dantzic. The greatest cold of the ordinary winters at Cracow is from 13° to 16° Réaum. (from 2° above zero, to 4° below zero, Fahr.); and the snow seldom lasts longer than from two to three weeks. At Niedzwiedz, about three miles from the city, Count Wodzicki, a gentleman who has never been out of Poland, began, in the year 1814, to plant an arboretum; and he has pursued his plan with such energy, that in 1836 his collection amounted to nearly 200 species and varieties, exclusive of half-hardy species, which he keeps in conservatories, or against walls. An account of this arboretum, as it was in the year 1833, was published in the *Annales de Fromont*, tom. v. p. 177.; and a translation of this account, with some corrections and additions sent us by the author, will be found in the *Gardener's Magazine*, vol. xiv., for 1838. Though Count Wodzicki, as he informs us, was upwards of 61 years of age when he commenced his arboretum, and consequently, in 1836, must have been 83 years old, his passion for trees was then by no means diminished. He was in constant correspondence with Messrs. Booth of Hamburg, M. Soulange-Bodin of Paris, and various commercial cultivators and amateurs; and he spares no expense in procuring every new ligneous plant that is likely to stand the open air at Cracow. A list of the species and varieties which were in the arboretum at Niedzwiedz in September, 1836, with their dimensions and the year in which each was planted, has been kindly sent us by the count; from which it appears that the growth of the hardier species, in that climate, is as rapid as it is in the climate of London. *A*'cer Pseùdo-*P*látanus, 24 years planted, is 28 ft. high, with a trunk 22 in. in diameter; *A*. *p*latanöìdes, of the same age, is 30 ft. high, with a trunk 18 in. in diameter; *A*. rùbrum, 20 years planted, is 34 ft. high, with a trunk 13 in. in diameter; and *A*. eriocárpum, of the same age, is 36 ft. high, with a trunk 18 in. in diameter. *A*'bies rùbra, 25 years planted, is 48 ft. high, with a trunk 17 in. in diameter. *B*étula álba péndula, 24 years planted, is 32 ft. high, with a trunk 18 in. in diameter.

In the Crimea, many foreign trees and shrubs have been introduced into the government garden, and into those of Count Woronzow and some other noblemen.

The introduction of these trees and shrubs may be divided into three periods. In the first period, during the reign of Catharine, the olive, the mulberry, the sweet chestnut, the walnut, the fig tree, the *D*iospỳros *L*òtus, the laurel, the arbutus, and others, were planted in the gardens of individuals, in great part through the influence of Professor Pallas. The second period commenced with the year 1811, when the Duke of Richelieu had the government garden laid out at Nikita, and placed it under the direction of Mr. Steven. This garden soon became celebrated for its collection of trees and shrubs. It contains at present, among other trees, some fine specimens of the genus *C*ìtrus in the open air, which require only slight protection during winter. The Magnòl*ia* grandiflòra also stands in it in the open air, and flowers every year. The third period commences with the settlement of Count Woronzow at Alpuka. in the year 1823, when he brought with him an English gardener, and an extensive collection of trees and shrubs. Alpuka is finely situated on the sea coast, and it may be worth noticing, that it was admired thirty-six years ago by Prince Potemkin, who caused two cypresses to be planted in the very situation where Count Woronzow is now building a house, under the direction of an English architect.

The winter in this part of Russia lasts but three months, so that oranges, and other trees of the East and West Indies, require only to be protected by a slight roof or tent of boards, covered with leaves or straw. The following species grow freely in the open air: —

Ranunculàceæ: Clématis flórida fl. pl., *Pæònia Moútan.* *Magnolì*aceæ: Magnòlia grandiflòra. *Winter*àceæ: Illícium floridànum. *Pittospòreæ:* Pittósporum *Tobìra.* *Líneæ:* Lìnum trígynum. *Camellì*èæ: Caméllia japónica; *Thèa Bohèa,* víridis. *Rutàceæ:* Corræ̀a álba. *Leguminòsæ:* Edwárdsia microphýlla. *Rosàceæ:* Rùbus *rosæfòlius* fl. pl. *Onagràriæ:* Fúchsia coccínea. *Salicàriæ:* Lagerstrœ̀mia índica. *Myrtàceæ:* Mýrtus commùnis, Eugènia austràlis, Metrosidèros lanceolàta. *Passiflòreæ:* Passiflòra filamentòsa. *Cácteæ,* or *Opuntiàceæ:* Cáctus *Tùna.* *Caprifoliàceæ:* Lonícera japónica, Vibúrnum rugòsum. *Oleàceæ:* O'lea fràgrans, Ligústrum lùcidum. *Jasmíneæ:* Jasmìnum revolùtum. *Apocýneæ:* Nèrium Oleánder. *Labiàtæ:* Sálvia mexicàna. *Verbenàceæ:* Verbèna triphýlla. *Lauríneæ:* Laúrus fœ̀tens. *Aristolochièæ:* Aristolòchia glaúca. *Cupulíferæ:* Quércus Sùber, *Ballòta.* *Myríceæ:* Myrìca quercifòlia. *Coníferæ:* Araucària imbricàta, Cunninghàmia lanceolàta. *Asphodèleæ:* Phórmium tènax. Tulipàceæ: *Yúcca aloïfòlia,* gloriòsa, glaúca. *Pálmæ:* Chamæ̀rops hùmilis, Phœ̀nix dactylífera.

SECT. VI. *Of the Indigenous and Forest Trees and Shrubs of Switzerland.*

SWITZERLAND, from its range of latitude, its lofty mountains, and its hills of every degree of altitude, of every variety of form, and of many different kinds of geological structure, is by far the most interesting country in Europe for the botanist. Here, in consequence of the elevation, we have the plants of the arctic circle on the one hand; while the latitude of the southern extremity, its low level, and proximity to the sea, joined to complete shelter from the north-east and west, are quite suitable for the plants of Italy and Greece. The indigenous ligneous flora of Switzerland, therefore, contains many species not indigenous to Britain. The following enumeration is taken from Suter's *Flora Helvetica,* edit. 1822; and Gaudin's *Flora Helvetica,* 7 vols., recently completed: —

Ranunculàceæ. Clématis Flámmula, Átrágene austrìaca.

* *Capparídeæ.* * Cápparis spinòsa. * *Lauríneæ.* Laúrus nóbilis.

Hypericíneæ. Hypéricum Còris, Rícher*i*.

Philadélpheæ. Philadélphus coronàrius.

Grossulàceæ. Rìbes reclinàtum. * *Cácteæ.* Opúntia vulgàris.

* *Granàteæ.* Pùnica Granàtum. *Thymelæ̀æ.* Dáphne alpìna, Cneòrum.

Rosàceæ. Ròsa *Eglantèria,* cinnamòmea, montàna, provinciàlis gállica, rugòsa glutinòsa, pùmila, pyrenàica, alpìna, dumetòrum, rubrifòlia, spínulifòlia, collìna, álba; Rùbus tomentòsus, glandulòsus.

Pomàceæ. Pýrus bollwylleriàna, Chamæméspilus; Cydònia vulgàris, *Amelánchier* vulgàris, Cotonéaster tomentòsa, Méspilus germánica; Cratæ̀gus intermèdia, monógyna, * *Azaròlus.*

Amygdàleæ. * Amýgdalus commùnis, Cérasus *Mahàleb.*

Leguminòsæ. Genísta radiàta, sagittàlis, ovàta, decúmbens, germánica; Onònis *Nàtrix,* rotundifòlia; Colùtea arboréscens, Astrágalus aristàtus; Coronílla E'merus, glaúca; Cýtisus alpìnus, Labúrnum, nígricans, sessilifòlius, hirsùtus, capitàtus.

* *Urtíceæ.* Fìcus Cárica, Mòrus álba.

Ulmàceæ. U'lmus effùsa, Céltis austràlis.

Cupulíferæ. Quércus pubéscens.

Betulíneæ. Bétula pubéscens; A'lnus incàna, víridis, glutinòsa incìsa, glutinòsa laciniàta.

Salicíneæ. Sàlix físsa, Villars*iàna,* præ̀cox, cineráscens, stylàris, myrtillöìdes, arbutifòlia, retùsa, ripària, pátula, versifòlia, Lappònum, Pontederà*na,* Jacquin*iàna,* ovàta; * Pópulus dilatàta.

*Euphorb*iàceæ. Euphórbia sylvática, Charàcias; Búxus sempervìrens.

Celastríneæ. Euónymus latifòlius.

Rhámneæ. Rhámnus saxátilis, alpìnus, pùmilus.

Staphyleàceæ. * Staphylèa pinnàta.

Aceríneæ. A'cer Pseùdo-Plátanus, platanöìdes, opulifòlium.

**Vìtes.* Vìtis vinífera. *Anacardiàceæ.* Rhús Cótinus.

Rutàceæ. Rùta gravèolens, montàna.

Polygàleæ. Polýgala Chamæbúxus.

Cistíneæ. Cístus salviæfòlius; Heliánthemum Fumàna, cànum, œlándicum, alpéstre, salicifòlium, pilòsum, apennìnum, ? H (or ? *C.*) calycìnum.

Tamariscíneæ. Támarix germánica.

Chenopòdeæ. Salsòla prostràta.
Ericàceæ. *E*rìca herbàcea, arbòrea; *R*hododéndron ferrugíneum, hirsùtum.
Compósitæ. *Artemísia* *A*brótanum, *H*elichrỳsum *S*tœ̀chas.
Caprifoliàceæ. Lonícer*a* nìgra, Xylósteum, alpígena, cærùlea; *C*aprifòlium etrúscum, *S*ambùcus racemòsa.
Córneæ. *C*órnus más.
* E*benàceæ.* *D*iospỳros *L*òtus.
* J*asmíneæ.* *J*asmìnum officinàle.
* O*leàceæ.* *Syrínga* vulgàris.
Labiàtæ. *H*yssòpus officinàlis, Lavándula Spìca, *T*eùcr*ium* montànum, *R*osmarìnus officinàlis, *S*álvia officinàlis.
Coníferæ. *P*ìnus *Mùghus*, pumílio, *Cémbra;* *A*'bies *P*ícea, excélsa; *L*àrix europæ̀a, *J*uníperus *S*abìna, *E*'phedra distàchya.

An extremely interesting account of the indigenous and exotic trees of Switzerland, kindly prepared for us by M. Alphonse De Candolle, will be found in the twelfth volume of the *Gardener's Magazine*; and to that we must refer for the geographical distribution of the indigenous species, confining here ourselves to an extract from it respecting the more remarkable native trees, and those which are exotic.

The exotic trees cultivated in Switzerland have been introduced by degrees as ornamental plants; those now most common are, the horsechestnut, the catalpa, the tulip tree, several kinds of limes and maples, and the cedar of Lebanon. Till the beginning of the present century these trees were planted only by proprietors who had some connexions or commercial dealings with other countries, particularly with England. There were scarcely any nurserymen or botanic gardens at Zurich, Bâsle, Geneva, or Berne, but what were reduced to confined spots in the interior of the fortified towns, and which, consequently, could have little influence on the culture of trees in the country.

This state of things has changed greatly within the last twenty years. The new botanic garden of Geneva, planted in 1818, in a less confined situation than the old one, and confided to the care of M. De Candolle, has presented to the public a numerous collection of trees and shrubs, especially of fruit trees, chiefly from the nursery of the Messrs. Baumann at Bollwyller. The sight of this garden, which is constantly open to the public, excited the zeal of proprietors, and soon made them anxious to form plantations of various kinds of trees. This gave encouragement to the nurserymen, and their establishments became, in consequence, greatly extended, and their number increased. The season of peace and security which has followed a long period of war, has produced nearly the same result throughout all Switzerland. The number of country seats has greatly increased, particularly near the towns, and, more especially, in the cantons of Geneva, Vaud, Bâsle, and Berne; and a number of parks and groves have been planted, which now ornament the country. In the environs of Geneva, for example, the sale of trees and shrubs is four or five times as great now, as it was about twenty years ago.

The largest nursery in Switzerland at present is supposed to be that of Messrs. Dailledouze, at Sacconex, near Geneva, which may be fairly estimated now to contain nearly 1000 ligneous species, in the botanic sense of the word species; and above 2000 species and varieties, if we count among the number the principal modifications of fruit trees, roses, and azaleas. The other public and private gardens of Switzerland contain few varieties, especially of the hardy kinds, which are not in the nursery of Messrs. Dailledouze. In adding, then, about 200 species to those which are to be found in this nursery, and counting about eighty indigenous ligneous plants, which have not been taken into cultivation, we shall find that the whole ligneous flora of Switzerland amounts to about 1300 species. The result of this approximated calculation shows that, from foreign commerce and improved cultivation, five or six times as many species of trees and shrubs are now grown in Switzerland, as existed there originally.

In the botanic garden, *Zízyphus* vulgàris, the pomegranate, and the fig, live against walls, and ripen their fruits. The kölreuteria, the cork tree, *Quércus* fastigiàta, *Júglans fraxinifòlia*, and the *Arúndo Dònax*, stand at Geneva, even in the open country. *Quércus* fastigiàta, in particular, which was introduced by M. De Candolle about 1820, promises to become a great ornament to the Swiss parks. The resemblance which this tree bears to the Lombardy poplar, except that it has an oak leaf, gives it a very extraordinary degree of interest.

If we search in Switzerland for trees remarkable for their antiquity or rarity, we shall find several worthy of being mentioned here. We shall begin with indigenous trees, and then proceed to those which are exotic.

At Fribourg, in the public square, there is a large lime, the branches of which are supported by pieces of wood. This tree was planted on the day when the victory was proclaimed of the Swiss over the Duke of Burgundy, Charles the Rash, in the year 1476; and it is a monument admirably accordant with the then feebleness of the Swiss republics, and the extreme simplicity of their manners. In 1831, the trunk of this tree measured 13 ft. 9 in. in circumference.

The tree of Trons, in the Grisons, is a monument of a similar nature: under the shade of this tree, it is said that the deputies of the country swore to free themselves from the yoke of their lords. This tree is celebrated in all the local poems as being a lime, but the fact is, that it is a sycamore (*A'cer* Pseùdo-*Plátanus*), the trunk of which is now 26 ft. 6 in. in circumference at 1 ft. 6 in. from the ground. We can hardly suppose that it could have been less than 100 years old, when it served as a place of rendezvous for the conspirators, in which case it must be now nearly 500 years old. In the *Bibliothèque Universelle de Genève*, for August, 1831, there is a letter from Colonel Augustus Bontemps, in which it is mentioned, that the probable reason why this sycamore is called a lime in the local poems is, that the German word "ahorn," which signifies a sycamore, is very unpoetical, while that for a lime tree, "linde," is soft and liquid; and this made the former be rejected by the writers of the old ballads.

At Zoffingen there are two lime trees, on the branches of which is placed a plank in such a manner as to enable any one to walk from the one to the other; and thus, people may not only walk, but even dance, upon the foliage of the tree. In the village of Villars-en-Morig, near Fribourg, there is a large lime, which existed there long before the battle of Morat (which the tree at Fribourg commemorates), and which is now of extraordinary dimensions. It was, in 1831, 70 ft. high, and 36 ft. in circumference at 4 ft. from the ground, where it divided into large and perfectly sound branches. It must be nearly 1000 years old. (See De Candolle's *Physiologie Végétale*, p. 987.)

These are certainly the most remarkable trees in Switzerland, because they are all linked, more or less, with the history of the country. They speak to the imaginations of the people, and are connected, not only with the amusements of each generation, but with the victories that, in ancient times, secured the independence of the Swiss.

We shall now mention some trees which are interesting in a botanical point of view. These are almost all found in the neighbourhood of Geneva, where the Messrs. De Candolle, father and son, have taken care to measure them, in order to commence a series of exact observations on the growth of trees. These two naturalists are aware, that, in order to calculate the age and products of old trees, we want data as to their growth after they have passed a century or two of their existence; and they have conceived the idea of making a register of all the numerous measurements that they have taken, designating exactly the local position of the trees. They mean to deposit this register in some public establishment, in order that other botanists may, after them, continue the same kind of observations on the same trees during several centuries.*

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* The botanical reader is, no doubt, aware that Professor De Candolle was the first to throw out the idea, that exogenous trees have no definite term affixed to their existence, and, consequently, that there can be no limit to the number of years that a dicotyledonous tree may live. (See *Physiologie Végétale*, vol. iii. p. 957—1022.)

The promenade of the Isle of Barques, at Geneva, at the exit of the Rhone, has several fine hornbeams; the largest of which was, in 1831, 8 ft. in circumference at 3 ft. above the soil. In the same year, a lime tree in the country seat of Vieusseaux, at Chatelaine, had a trunk 18 ft. 4 in. in circumference. Two elms situated at Pré-l'E'vêque were, in 1833, at 3 ft. from the ground, 17 ft. in circumference. The largest beeches in the country were situated at the entrance to the Abbey de Pommers sous Salève. One of them was, in 1833, at 2 ft. from the ground, 15 ft. 6 in. in circumference, and the other 15 ft. 4 in.

Among the foreign trees we may notice the horsechestnut of Mr. Charles Martin at Molagnore. It passes for one of the most ancient in the country, and is 13 ft. 3 in. in circumference, with a top which projects very far over the adjacent road. The park at Ferney does not present any remarkable exotic tree; but they show an elm, planted by Voltaire in 1763, of which the trunk, in 1831, was 6 ft. 4 in. in circumference at 4 ft. from the ground. Since that time the tree has been so ill-treated by visitors, who have stripped off portions of its bark as a memorial of the great poet of Ferney, that it has been found necessary to surround it with stakes. The park of Bossière, near Geneva, has some fine trees, and had, a few years since, some *Cýtisus* alpinus [Scotch laburnums] which were nearly 40 ft. nigh. The finest of these trees perished some years ago, but the remainder are still well worth visiting.

Near to Geneva, the country seat which presents the greatest number of old exotic trees is the residence of M. Gaussen, at Bourdigny: it is there that grows the female salisburia, the only old specimen in Europe. M. De Candolle having discovered the sex of this plant, by observing that it bore fruit, about the year 1818, hastened to send cuttings and grafts of it to all the principal gardens in Europe. He published some remarks on it in the *Bibliothèque Universelle*, vol. vii. p. 38. The precise epoch of its being planted is unknown. The former proprietor of Bourdigny, M. Gaussen of Chapeaurouge, was a zealous amateur, who exerted himself to procure foreign seeds, and generally obtained his plants of foreign trees from England. He began his plantations in the year 1767, and he continued planting during 30 years. The female salisburia, when measured in April, 1835, at 1 ft. 10 in. from the ground, was precisely 4 ft. in circumference. The head was depressed, and did not reach higher than 12 ft. or 15 ft.; but it spread out, laterally, to such an extent as to cover a space 25 ft. in diameter.

This tree is perfectly healthy, and produces fruit (*pommes*) every year; which, however, do not contain any fertile seeds, because there is no male tree in the immediate neighbourhood. M. Gaussen has latterly grafted some male branches on his tree, but the grafts have not taken. The only male salisburia which grows in the neighbourhood of Geneva, is three leagues from the female one, at Philosophes, the seat of M. Alexandre Prévost, formerly Swiss consul in England. This tree is 2 ft. 8 in. in circumference, and its habit of growth resembles that of the specimen at Bourdigny. If the grafts do not ultimately succeed, branches of the male plant, in flower, may be brought to fructify the female plant, in the same manner as the caprification of the date palms is effected in Egypt.

In the same country seat belonging to M. Gaussen, there are, also, a cork tree, the trunk of which is above 3 ft. 4 in. in circumference, at 3 ft. from the ground; a female *Negúndo f*raxinifòlium, which is 3 ft. 3 in. in circumference at 4 ft. from the ground, and at least 40 ft. high; a *J*uníperus virginiàna, 3 ft. 2 in. 9 lines in girt; a beautiful chionanthus, some fine platanuses, and other well-grown trees.

The celebrated De Saussure planted several exotic trees on his terrace in the town of Geneva; and persons passing along the Rue de la Corraturie may remark the fine effect produced on this terrace by an old catalpa and a *J*ùglans nìgra.

The oldest Taxòdium dístichum in the neighbourhood of Geneva is not more than 30 years old; it exists on the grounds of M. Rigot, at Varembé

M. Dunant possesses, on his grounds at Secheron, a *Quércus I'lex*, which is very fine for the country.

At the entrance of the botanic garden there is an old *Ailántus* glandulòsa, much older than the garden. It measured, in June, 1833, at the level of the soil, 7 ft. 3 in. in circumference, and was between 45 ft. and 50 ft high. The unpleasant smell of its flowers is perceived at half a furlong's distance, and its numerous and troublesome suckers rise all round, as far as 40 ft. or 50 ft. from the tree.

The trees contained in the botanic garden itself are not old, as the garden has not been established more than 17 years. Among the rarest and best-grown trees which have been planted from 15 to 17 years, we may mention the following: — A Photínia serrulàta, spreading into branches from its base, and about 12½ ft. high; a Magnòl*ia* acuminàta, about the same height, with a trunk 7 in. in circumference; a kölreuteria, 15 ft. high, with a trunk 13 in. in circumference; and a tulip tree, 40 ft. high, 3 ft. 5½ in. in circumference; *A'*cer striàtum, 24 ft. high, and 1 ft. 7½ in. in circumference; *Æ'*sculus flàva and rubicúnda, 30 ft. high, and 1½ ft. in circumference; *P*àvia hýbrida, 20 ft. high, and 14½ in. in circumference; *C*érasus serótina, 35 ft. high, and 2 ft. 4 in. in circumference; *M*éspilus Smíth*ii* Dec., 20 ft. high, and 1 ft. 8 in. in circumference; *C*ratæ'gus nìgra, about the same height, and 1 ft. 2½ in. in circumference; *H*ippóphae *r*hamnöìdes, and *E*læágnus angustifòlia, 12 ft. high, and 1 ft. in circumference; Pláner*a* crenàta, 35 ft. high, and 1 ft. 9 in. in circumference; *P*ópulus angulàta, which sometimes retains its leaves till Christmas, 60 ft. high, and 4 ft. in girt; *A'*lnus cordàta, 35 ft. high, 1½ ft. in girt; *Q*uércus àlba, 18 ft. high, and 2 ft. 1 in. in girt; *J*uníperus thurífera, 15 ft. high, and 1 ft. in girt; *P*ìnus Larício, 25 ft. high, and 2 ft. 4 in. in girt; *P*ìnus *Mùghus*, 20 ft. high, and 2 ft. 5 in. in girt; and *L*àrix europæ'a, the branches of which hang in a very singular manner, is 30 ft. high, and 2 ft. 5 in. in circumference near to the base of the trunk. All these measurements were taken at such a height from the ground as seemed most likely to give the true dimensions of the trunk, and to avoid the thickness often produced by the graft, or at the base; and these measures were all taken by M. Alphonse De Candolle, in October, 1835. It is to be wished that a register of similar measurements were opened in every botanic garden, in order to verify the date of the introduction, and the rate of growth, of every species, according to the diverse physical circumstances of each locality. (*A. De C. Nov.*, 1835.)

SECT. VII. *Of the Indigenous and Foreign Trees and Shrubs of Italy, Greece, Spain, Portugal, and the Mediterranean Islands.*

ITALY, having been, during the Roman empire and the dark ages, the centre of civilisation in Europe, would, doubtless, draw from all other countries whatever of their productions was suitable to its climate. Hence the ligneous flora of Italy includes almost all the trees and shrubs indigenous to Greece, Spain, and the Mediterranean islands, which are in any way remarkable for their use or beauty. In the following enumeration, taken from Tenore's *Flora Neapolitana*, Bertoloni's *Flora Italica*, Savi's *Botanicon Etruscum*, Smith's *Prodromus* of Sibthorp's *Flora Græca*, Brotero's *Flora Lusitanica*, Gussone's *Floræ Siculæ Prodromus*, and Hogg's *Observations on the Classical Plants of Sicily*, we have included all the ligneous plants which are indigenous, or apparently so, in these countries, and which are not included in the indigenous flora of Britain. Those which are believed to be peculiar to any one or two of the countries, have the name of such countries following the name of the plant.

R*anunculàceæ.* Clématis cirrhòsa, Viticélla, campaniflòra (Portugal), Flámmula, Flámmula var. rotundifòlia *Dec.* (Naples).

Berberídeæ. *Bérberis* crética (Greece).

Crucíferæ. *I*bèris sempervìrens (Greece); *A*lýssum rupéstre (Naples), argénteum (Etruria).

C*apparídeæ*. *C*ápparis spinòsa, Fontanès*ii*, and rupéstris (Greece).

C*istíneæ*. *C*ístus críspus (Portugal, Greece), álbidus (Portugal, Greece), *s*alviæfòlius, hirsùtus (Portugal), monspeliénsis, *p*opulifòlius (Portugal), ladaníferus (Portugal), incànus, villòsus (Greece, Etruria), *l*aurifòlius (Greece), créticus (Greece), parviflòrus (Greece).

Heliánthemum *L*ibanòtis (Portugal), umbellàtum (Portugal), umbellàtum var. (*C*ístus verticillàtus *Brotero*) (Portugal), *o*cymöìdes (Portugal), *h*alimifòlium, cheiranthöìdes (Portugal), lasiánthum (Portugal), involucràtum (Portugal), scabròsum (Portugal), Fumàna, læ'vipes, *o*riganifòlium (Portugal), *t*hymifòlium (Portugal, Greece), *s*tœchadifòlium (Portugal, Naples), híspidum (Portugal), alpéstre (Greece), pilòsum (Greece), lavandulæfòlium (Greece, Naples), racemòsum (Greece), hírtum (Greece), ellípticum (Greece), apennìnum (Greece), arábicum (Greece, Etruria), víride (Naples), itálicum (Etruria).

P*olygàleæ*. *P*olýgala Chamæbúxus (Naples), microphýlla (Portugal).

Caryophýlleæ. Diánthus arbòreus (Greece), fruticòsus (Greece), Silène fruticòsa (Greece, Sicily).

L*íneæ*. *L*ìnum arbòreum (Greece).

M*alvàceæ*. Lavàter*a* O'lbia (Greece, Portugal), tríloba (Portugal).

* *Aurantiàceæ*. *C*ìtrus *M*édica (* Sicily, * Portugal), Aurántium (* Sicily, * Portugal).

H*ypericíneæ*. *H*ypéricum calycìnum (Greece), hircìnum (Greece), *e*mpetrifòlium (Greece), rèpens (Greece), *C*òris (Greece, Etruria), linearifòlium (Portugal).

A*ceríneæ*. *A*ˋcer monspessulànum (Greece, Naples), créticum (Greece, Sicily), obtusifòlium (Greece), Pseùdo-*P*látanus (Naples, Portugal), *O*'pulus (Naples), neapolitànum (Naples).

Hippocastàneæ. * *Æ*'sculus Hippocástanum (Greece, * Portugal).

M*eliàceæ*. *M*èlia *Azedarách* (Portugal).

* V*ìtes*. *V*ìtis vinífera.

R*utàceæ*. *R*ùta gravèolens, montàna (Greece, Naples), chalepénsis (Greece), divaricàta (Naples), angustifòlia (Naples), macrophýlla (Naples), tenuifòlia (Portugal), bracteòsa (Sicily); Aplophýllum *l*inifòlium (Greece).

Zygophýlleæ. Zygophýllum álbum (Greece).

Xanthoxýleæ. *C*neòrum tricóccum (Italy).

C*elastríneæ*. *E*uónymus latifòlius (Greece).

Staphyleàceæ. Staphylèa pinnàta.

R*hámneæ*. *R*hámnus infectòrius (Greece), *o*leöìdes (Greece, Sicily), *p*runifòlius (Greece), saxátilis (Greece), alpìnus (Greece), pubéscens (Greece), *A*latérnus, Clùs*ii* (Sicily), *l*yciöìdes (Portugal), ? *b*uxifòlius (Portugal); *P*aliùrus aculeàtus (Greece, Sicily); *Z*ízyphus vulgàris, *L*òtus (Portugal, Sicily).

Anacardiàceæ. *P*istàcia *T*erebínthus (Greece, Portugal), vèra (Sicily), *L*entíscus; *R*hús *C*oriària, *C*ótinus (Greece, Sicily), pentaphýlla (Sicily), dioíca (Sicily.)

Leguminòsæ. *S*pártium *j*únceum; *G*enísta Scórpius (Greece), angulàta (Greece), hórrida (Greece,) humifùsa (Greece), cándicans, sphærocárpa (Portugal), monospérma (Portugal), tridentàta (Portugal), *p*olygalæfòlia (Portugal), Bróter*i* (Portugal), lusitánica (Portugal), triacánthos (Portugal), falcàta (Portugal), algarbiénsis (Portugal), germánica (Portugal), sagittàlis (Etruria), radiàta (Naples, Etruria), hirsùta (Naples), ovàta (Naples, Etruria), scariòsa (Naples, Etruria), amxántica (Naples), diffùsa (Naples), *e*phedröìdes (Sardinia), Cupàn*i*; *C*ýtisus lániger, pónticus (Greece), sessilifòlius, hirsùtus, triflòrus, grandiflòrus (Portugal), pàtens (Portugal), *L*abúrnum, nígricans (Etruria), supìnus (Naples), argénteus (Naples), álbus (Naples, Portugal), spinòsus (Etruria), capitàtus (Etruria); Adenocárpus hispánicus (Portugal), parvifòlius; Stauracánthus aphýllus (Portugal); *A*nthýllis Bárba Jòvi*s* (Greece, Naples), Hermánn*iæ* (Greece); *E*'benus crética (Greece); *C*olùtea arboréscens; Coronílla E'merus, glaúca (Greece, Portugal); *Alhàgi* Mauròrum (Greece); *A*strágalus angustifòlius (Greece); aristàtus (Greece), créticus

(Greece), Potèrium (Portugal); Psoràlea bituminòsa (Greece, Portugal); Dorýcnium hirsùtum (Greece), réctum (Greece), suffruticòsum (Greece); Ceratònia Síliqua; Anagýris fœ'tida; Cércis Siliquástrum; Medicàgo arbòrea (Greece, Sicily); Onònis Nàtrix (Portugal), hispánica (Portugal); Lòtus argénteus (Portugal), créticus (Portugal).

Rosàceæ. Ròsa glutinòsa (Greece, Sicily), sempervìrens (Greece, Sicily), scándens *Brotero* (Portugal), heclelìana (Sicily), Seraphìni (Sicily), pulverulénta (Sicily), gállica (Sicily); Rùbus tomentòsus (Greece, Sicily), hírtus (Sicily); Spiræ'a crenàta (Portugal).

Pomàceæ. Méspilus germánica; Cydònia vulgaris; *Amelánchier* vulgàris; Pýrus salicifòlia (Greece), crética (Greece), Chamæméspilus (Greece), cuneifòlia *Guss.* (Sicily), nebrodénsis *Guss.* (Sicily), præmórsa *Guss.* allied to aucupària (Sicily), acérba *Dec.* (Sicily); Cratæ'gus Pyracántha, monógyna, *Azaròlus*, tanacetifòlia (Greece), nìgra (Naples), laciniàta *Ucria* (Sicily), florentìna (Etruria).

Sanguisórbeæ. Potèrium spinòsum.

Amygdàleæ. Amýgdalus commùnis, incàna (Greece), nàna (Greece); Pérsica vulgàris (Sicily, Portugal); Armenìaca vulgàris (Portugal); Cérasus lusitánica (Portugal), *Mahàleb* (Greece, Sicily), caproniàna (Sicily), Laurocérasus (Greece), prostràta (Greece).

Granàteæ. Pùnica Granàtum.

Tamariscíneæ. Támarix gállica, africàna (Sicily).

Philadélpheæ. Philadélphus coronàrius (Naples, Portugal).

Myrtàceæ. Mýrtus commùnis, c. var. itálica (Sicily), c. var. romàna (Sicily), c. var. bæ'tica (Sicily), c. var. lusitánica (Sicily).

Crassulàceæ. Sempervìvum arbòreum (Greece, Portugal).

Cácteæ. Opúntia vulgàris (Portugal, Sicily), máxima (Sicily).

Umbellíferæ. Bupleùrum fruticòsum (Greece, Sicily), Sibthorpiànum (Greece).

Araliàceæ. Hédera Hèlix chrysocárpa (Sicily).

Caprifoliàceæ. Caprifòlium etrúscum, impléxum (Sicily), canéscens (Sicily); Lonícera nìgra (Greece), Xylósteum, alpígena (Greece); Vibúrnum Tìnus (Portugal), T. hírta (Naples), T. lùcida (Naples), T. virgàta (Naples, ? * Sicily); Sambùcus racemòsa.

Córneæ. Córnus más (Greece, Etruria).

Loranthàceæ. Loránthus europæ'us.

Cinchonàceæ. Ernodèa montàna (Greece, Sicily).

Compósitæ. Stæhelìna arboréscens (Greece), fruticòsa (Greece), uniflosculòsa (Greece), Chamæpeùce (Greece); Artemísia arboréscens (Greece, Portugal); Helichrýsum Stœ'chas (Greece, Portugal), orientàle (Greece, * Portugal); Conýza saxátilis, pùmila (Greece), cándida (Greece, Naples), limoniifòlia (Greece); Cinerària marítima (Greece); Buphthálmum marítimum; Santolìna rosmarinifòlia (Portugal, Sicily), Chamæcyparíssus (Portugal); Caléndula suffruticòsa (Portugal).

Ericàceæ. Erìca arbòrea, multiflòra, manipuliflòra (Greece), herbàcea (Greece, Etruria), spiculiflòra (Greece), scopària, austràlis (Portugal), umbellàta (Portugal), mediterrànea (Portugal), sícula *Gussone* (Sicily); A'rbutus Andráchne (Greece).

Styracíneæ. Stýrax officinàle (Greece).

Ebenàceæ. Diospýros Lòtus (Greece).

Oleàceæ. O'lea europæ'a; Phillýrea mèdia, mèdia ligustrifòlia (Sicily), mèdia buxifòlia (Sicily), latifòlia, latifòlia spinòsa (Sicily), angustifòlia, strícta (Italy), læ'vis (Naples); Fontanèsia phillyreöìdes (Italy, Sicily); O'rnus europæ'a (Greece, Italy), rotundifòlia (Italy); Fráxinus parvifòlia (Italy), argéntea (Italy).

Jasmíneæ. Jasmìnum frùticans.

Apocýneæ. Nèrium Oleánder; Vínca mìnor, màjor.

Asclepiàdeæ. Períploca græ'ca (Greece), angustifòlia (Sicily); Gomphocárpus fruticòsus (Sicily).

Convolvulàceæ. *C*onvólvulus *C*neòrum, *D*orýcnium (Greece), lanàtus (Greece).

B*oragíneæ.* *L*ithospérmum hispídulum (Greece), fruticòsum (Portugal), rosmarinifòlium (Sicily).

S*olàneæ.* *S*olànum sodòmeum, * Pseùdo-Cápsicum (Portugal), moschàtum (Sicily); *L*ýcium bárbarum (Greece), europæ̀um, ? àfrum (Sicily).

V*erbenàceæ.* *V*ìtex *A'*gnus-cástus var. latifòlia (Portugal).

Labiàtæ. *T*eùcr*ium* frùticans, brevifòlium (Greece), créticum (Greece), quadrátulum (Greece), Arduìn*i* (Greece), massiliénse (Greece), flàvum, montànum, *P*òlium, capitàtum (Greece, Naples), cuneifòlium (Greece), alpéstre (Greece), spinòsum (Naples), Pseùdo-*H*yssòpus (Naples); *Saturèja* nervòsa (Greece), *T*hýmbra (Greece), montàna (Greece, Etruria), capitàta (Greece, Sicily), spinòsa (Greece); *T*hýmbra spicàta (Greece); Lavándula Spìca (Greece, Etruria), *S*tœ̀chas, ? * dentàta (Greece), multífida (Portugal); *S*álvia spinòsa (Greece), palæstìna (Greece); Beringèr*ia* Pseùdo-*D*ictámnus (Greece); *P*hlòmis fruticòsa (Greece, Naples), ferrugínea (Naples); Moluccélla frutéscens (Greece); *O*ríganum *D*ictámnus (Greece), Tournefórt*i* (Greece); *T*hỳmus vulgàris (Greece, Portugal), lanceolàtus (Greece), *Z*ỳgis (Greece, Portugal), villòsus (Greece), cæspitítius (Portugal), Mastichìna (Portugal), *T*ragoríganum, micránthus (Portugal), créticus (Portugal), cephalòtus (Portugal); *A'*cynos gravèolens (Greece); *P*ràsium màjus; *R*osmarìnus officinàlis; *S*álvia officinàlis, pomífera (Greece), calycìna (Greece), tríloba (Greece, Italy), canariénsis (Sicily).

Globularíneæ. Globulària Alỳpum.

P*lumbagíneæ.* *S*tátice monopétala.

P*lantagíneæ.* *P*lantàgo *C*ỳnops (Greece, Sicily), subulàta (Sicily), macrorhìza (Sicily), àfra (Sicily).

A*marantàceæ.* Achyránthes argéntea (Naples, Sicily).

Chenopòdeæ. Salicórnia fruticòsa, cruciàta (Italy), macrostàchya (Sicily); Anábasis aphýlla (Greece); *A'*triplex *H*álimus, glaúca (Greece, Portugal), græ̀ca (Greece); Camphorósma monspelìaca (Italy, Sicily); Salsòla vermiculàta (Portugal), agrigentìna *Gussone* (Sicily), oppositifòlia (Sicily).

L*auríneæ.* *L*aúrus nóbilis.

T*hymelæ̀æ.* *D*áphne dioíca (Greece), *Tarton-raíra* (Greece, Naples), argéntea (Greece), póntica (Greece), *G*nídium, *b*uxifòlia (Greece), *o*leöìdes (Greece), *j*asmínea (Greece), serícea (Greece), alpìna, collìna (Greece), glandulòsa *Bertoloni* (? *o*leöìdes) (Sicily), *C*neòrum (Etruria); Passerìna hirsùta.

Santalàceæ. *O*sỳris álba (Greece, Portugal).

E*læágneæ.* *E*læágnus angustifòlia (Greece).

A*ristolochìeæ.* *A*ristolòchia sempervìrens (Greece), subglaúca (Portugal).

E*uphorb*iàceæ. *E*uphórb*ia* pùmila (Greece), spinòsa (Greece, Naples), dendröìdes (Greece, Sicily), sylvática (Portugal, Sicily), *C*haràcias, lanuginòsa (Naples), fruticòsa (Sicily), corallöìdes (Sicily), tanaicénsis (Sicily), *P*ínea (Sicily), *M*yrsinìtes (Sicily), biglandulòsa (Sicily); *B*úxus sempervìrens (Greece, Portugal); *M*ercuri*àlis* ellíptica (Portugal), tomentòsa (Portugal).

U*rtíceæ.* *F*ìcus Cárica.

U*lmàceæ.* *C*éltis austràlis, ? *U'*lmus Abelícea (*Fl. Gr. Prod.*).

Cupulíferæ. Quércus *B*allòta (Greece), *I'*lex, coccífera, rígida (Greece), infectòria (Greece), *Æ'*gilops (Greece), *E'*sculus (Greece, Sicily), pubéscens (Greece, Portugal), crinìta (Greece), racemòsa (Portugal), hýbrida (Portugal), fruticòsa (Portugal), lusitánica (Portugal), rotundifòlia (Portugal), *S*ùber (Portugal, Sicily), hispánica (Portugal); *C*órylus *C*olúrna (Greece); *O'*strya vulgàris (Greece); *C*astànea vésca (Sicily).

B*etulíneæ.* *A'*lnus cordifòlia (Naples).

S*alicíneæ.* *S*àlix ægyptìaca (Greece), retùsa (Naples), ripària *Tenore* (synonymes, incàna *Dec.*, viminàlis *Villars*) (Naples), salviæfòlia (Portugal), atrocinèrea (Portugal).

P*latàneæ.* *P*látanus orientàlis (Greece, Sicily).

M*yríceæ.* *M*yrìca *Fàya* (Portugal).

Coníferæ. *P*ìnus *P*ínea, marítima; *A*'bies *P*ícea (Greece); *C*upréssus sempervìrens, lusitánica (* Portugal); *J*uníperus *O*xýcedrus, macrocárpa (Greece), lýcia (Greece), phœnícea (Greece, Portugal), *S*abìna (Greece, Sicily); *E*'phedra distàchya (Greece, Portugal).

E*mpètreæ.* Corèma álbum (Portugal).

S*milàceæ.* *S*mìlax áspera (Greece, Sicily), nìgra (Greece), excélsa (Greece).

A*sphodèleæ.* *A*spáragus acutifòlius, aphýllus (Greece, Sicily), hórridus (Greece, Sicily), verticillàtus (Greece), álbus (Portugal, Sicily).

*Bromel*iàceæ. Agàve americàna (Portugal, the more southern part of).

P*álmæ.* *P*hœ'nix dactylífera (Sicily, * Portugal); *C*hamæ'rops hùmilis (Sicily).

Shortly after this period many foreign trees and shrubs were imported from England into the gardens of Signor del Negro of Genoa, and by him distributed among the amateurs of his neighbourhood. Some account of the gardens in which these trees were planted will be found in the *Encyc. of Gard.* (edit. 1835), made from our personal observations in 1819.

Having thus enumerated the species found in all these countries that are not indigenous to Britain, we shall subjoin some remarks on the trees and shrubs of Italy, of Spain and Portugal, and of Turkey and Modern Greece.

SUBSECT. 1. *Of the Trees and Shrubs of Italy.*

THE introduction of foreign trees and shrubs into Italy, in modern times, may date from the discovery of India by the Portuguese in 1494, or, rather, from their first settlement at Goa in 1510; from the intercourse of France and England with North America in the commencement of the seventeenth century; from the settlement at the Cape of Good Hope by the Dutch in 1650; and, lastly, from the discovery of Australia. From all these countries, but chiefly from the last, a number of trees and shrubs have been brought to Europe; which, though they require the protection of a green-house in England, thrive in the open air in the neighbourhood of Naples, in Sicily, and in warm situations about Genoa. Among Indian plants may be mentioned, as growing freely in the open air in the south of Italy, the orange and lemon, the Lagerstrœ'm*ia* índica, the cotton tree, and the cinnamon tree, which attain the height of small trees; from Syria, the *A*càcia *Julibríssin,* or silk tree. Among those from North America are, the magnolias, and various shrubs from the southern states, the agave from Mexico, and the palmetto from Louisiana. Among those from the Cape of Good Hope, are all the ligneous *G*eraniàceæ, many of the heaths, the diosmas, the proteas, the melaleucas, and similar species. From Australia there are many trees in Italy, which have already attained a large size; and there is scarcely a doubt but that nearly all the ligneous flora of that part of the world might be transplanted to Italy, including Sicily, with the most perfect success. As a proof of this, we may refer to the dimensions of certain Australian trees planted at Caserta, in the neighbourhood of Naples, as given in the *Gardener's Magazine*, vol. xi. p. 150. and p. 481. It appears that Eucalýptus robústa attains at Caserta, in a very few years, the height of 100 ft.; Callistèmon lophánthus, and *A*càcia heterophýlla, upwards of 50 ft. The Magnòl*ia* grandiflòra has attained the height of nearly 60 ft.; the camellia 25 ft.; and the melaleuca from 25 ft. to 30 ft. In Sicily, we are informed by Woods, Hogg, and other travellers, the palm and the *F*ìcus *S*ycómorus grow as freely as in Egypt, the sugar cane and the bamboo nearly as well as in the East or West Indies, and the papyrus and the nelumbium succeed in the waters. As the warmest parts of Sicily, therefore, admit of growing the plants of the warmest parts of Africa in the open air, there can, we think, be little hazard in supposing that, between the north of Italy and its southern extremities, the ligneous flora of the whole world might, with a very little assistance from art, be included.

The first introduction of foreign trees and shrubs into Lombardy, we are informed by Signor Manetti, the director and controller of the viceregal gardens at Monza, took place about the year 1770; they were planted by the brothers Pecinardi, near Cremona. In 1785 great additions were made to the foreign trees and shrubs of the north of Italy, by Count Louis Castiglione, who undertook a voyage to North America, and brought home a great number of seeds, which he sowed at Mozzate, afterwards distributing the plants over all Italy. In 1811 farther additions were made to the foreign trees and shrubs of Lombardy, by M. Villaresi, then director of the gardens of Monza; and in 1814 still further additions were made by the present viceroy. In consequence of these introductions, there are now, in the park and gardens at Monza, many fine specimens of exotic trees. Magnòl*ia* conspícua flowers every year, and ripens abundance of seed. M. grandiflòra, at 60 years old, is 36 ft. high; and, though in a very unfavourable situation, viz. a dry soil and a warm sunny exposure, it flowers and seeds freely. There are above 230 of these trees in the plantations of the park, besides numerous plants of all the other species. The tulip tree has attained the height of 70 ft. in 29 years, flowering and seeding every year. *Ailántus* glandulòsa, 29 years planted, is 60 ft. high; and Robín*ia* Pseùd-*A*càcia, of the the same age, is 75 ft. high, with a trunk 2 ft. in diameter, and branches covering a space of 120 ft. in circumference. There are many other fine trees in the grounds at Monza, details respecting which will be found in the *Gardener's Magazine*, vol. xi. p. 639.

In the garden of Count Mellerio, at Brianza, near Milan, the *M*èlia *Azedarách*, 26 years planted, is 40 ft. high, and flowers and seeds freely every year. This beautiful tree is one of the greatest ornaments of the public promenades of the south of Italy; but there are very few parts of Lombardy where it attains so large a size as at Brianza.

In the year 1832, the Abbé Belèse made a tour through the northern part of Italy, chiefly to inspect the gardens; and he noticed, among other trees and shrubs, the following: — Near Milan, at Soma, he saw a cypress of great antiquity, which girted 20 ft., and was 70 ft. high, though it had, for many years, lost its leading shoot; popular tradition says that it was planted previously to the birth of Christ; and the Abbé Belèse's brother assured him, that there was an ancient chronicle in Milan, which proves that this tree existed in the time of Julius Cæsar, B.C. 42. In the botanic garden at Padua, the abbé found two trees of Magnòl*ia* grandiflòra, which had been planted 90 years, soon after the introduction of the tree into Europe; they were 60 ft. high, with trunks 4 ft. in diameter; they were sown by the director of the garden, Farsetti, in 1742. There are in this garden, a salisburia, 60 ft. high; two trees of Lagerstrœ̀m*ia* índica, of 40 ft. high, which ripen seed every year; the common red-flowered althea frutex, 50 ft. high, and which, on the 8th of August, 1832, was so covered with blossoms as to resemble one immense flower of the double red camellia. *Quércus I*'lex is here 100 ft. high; *S*àlix annulàris, 40 ft.; *L*ýcium japónicum, 25 ft.; *A*càcia farnesiàna, 60 ft., the flowers of which perfumed the air for a great distance round; the date palm, 25 ft.; Aràlia spinòsa, 25 ft.; *C*érasus semperflòrens, bearing fruit and flowers at the same time, 50 ft.; *V*ìtex *A*'gnus-cástus, 140 years planted, and 35 ft. high; *Técoma* stáns, 30 ft.; *S*mìlax *Sarsaparílla*, 60 ft.; Nicot*iàna* glaúca, a magnificent tree-like specimen; Cæsalpín*ia Sáppan*, 15 ft.; *C*hamæ̀rops hùmilis, 25 ft.; *Asímina* tríloba, 20 ft., and covered with excellent ripe fruit; *A*càcia *Julibríssin*, 60 ft.; Liriodéndron Tulipífera, 80 ft.; Stercùlia *p*latanifòlia, 40 ft.: Casuarìna dístyla, 15 ft.; and a number of others, which will be found recorded in the *Annales de la Société d'Horticulture de Paris*, tom. 12e, p. 68.

In the Isola Bella there are a great many exotic trees and shrubs of very luxuriant growth. Among these are, an immense oleander, numerous trees of *L*aúrus nóbilis, of great growth; and a hydrangea, 10 ft. in diameter, and 8 ft. high, planted in peat soil, and covered with deep blue flowers. In this, and in other of the Borromean islands, the Agàve americàna stands the open air, and flowers freely. On the whole, though there are several tropical trees that will not live in the open air in the north of Italy generally, yet there are portions of it which, from local circumstances, possess so mild a climate, that, with very little art, Lombardy might be made to exhibit specimens of the ligneous vegetation of every part of the globe.

Subsect. 2. *Of the Trees and Shrubs of Spain and Portugal.*

From the indigenous trees and shrubs of this immense tract of country we may estimate its capacity for growing the trees and shrubs of other climates; and, while those of the North of Europe will find a congenial climate in the mountain ranges, and the elevated region of Madrid, those of the tropics will grow along the shores of the Mediterranean Sea.

There are numerous botanic gardens throughout Spain, and two in Portugal. In these gardens, La Gasca informs us, the trees and shrubs of most parts of the world have, at one time or other, been seen in a flourishing state. In the gardens in the neighbourhood of Madrid are found, the cedar of Lebanon and various other Coníferæ, different species of lime, maple, ash, *Æ*'sculus, *J*ùglans, *M*òrus, *C*ratæ`gus, *P*rùnus, *P*ỳrus, and *C*érasus, *Asímina* tríloba, Magnòl*ia* grandiflòra, *Sophòra* japónica, the Calycánthus flóridus, the Chimonánthus fràgrans, and many others. Capt. S. E. Cook informs us (*Sketches in Spain, &c.*) that the date palm will, in sheltered situations, resist the cold of Madrid; though its fruit only acquires perfect maturity on the coast of Western Andalusia, and in other parts of the shores of the Mediterranean. In the gardens in the neighbourhood of Cadiz the *M*ùsa sapiéntum ripens fruit every year; as do the different species of *C*ápsicum, *C*áctus, Cèreus, and Mesembryánthemum. All the trees and shrubs of the Cape of Good Hope and Australia grow here as well as in their native countries. In the gardens of Seville, similar exotics thrive freely, and the country is covered with orange, lemon, citron, and lime trees, olives, pomegranates, and algarobas, or carob trees.

We shall pass over the other gardens in Spain, detailed particulars of the more rare foreign trees contained in which, by Sr. La Gasca, will be found in the first and second volumes of the *Gardener's Magazine*, to notice the trees and shrubs of the botanic garden of Lisbon. In this garden the orange, lemon, and citron ripen their fruit in the open air. The Erythrìna pícta grows to the height of 15 ft. in one season, and ripens seed. *P*sídium pyríferum and pomíferum as standards, set their fruit, and ripen it against a wall. *Coffèa* arábica flowers in October, and the berries ripen in the May or June following. Cárica *Papàya* forms a fine umbrageous tree in the open garden, and ripens its fruit; though, being a tree with a succulent or spongy trunk, it is occasionally cut down to the ground. These instances are sufficient to prove, that, with the art of the gardener and the aid of walls, without hot-houses, all the ligneous plants of the world might be grown in the peninsula.

The prominent trees in the forests of Spain are, the Quércus *R*òbur, Q. *C*érris, and its numerous varieties; Q. *I*`lex, with its varieties still more numerous than those of Q. *C*érris; Q. *S*ùber; and *P*ìnus *P*ínea, *P*ináster, sylvéstris, uncinàta, &c. The silver fir is also abundant in some native forests, and the *L*àrix in the alpine regions of the northern provinces. The most remarkable of the indigenous trees are the cypresses in the gardens of the palaces which belonged to the Moorish kings; many of these venerable specimens are supposed to be upwards of five centuries old. The prevailing tree about Madrid, as about Paris and London, is the narrow-leaved elm.

The geographical distribution of the indigenous trees of Spain has been given, for the first time, after several years of ardent research and travel, by Capt. S. E. Cook, in his *Sketches of Spain*, published in 1834. Capt. Cook divides Spain geologically into three grand regions. The first is the northern, which includes Galicia, Asturias, &c., and the maritime part of Old Castile. This is the region of humidity and moisture, of the Quércus *R*òbur, and Q. *I*`lex, *U*`lex europæ`a, and *U*. e. strícta; and the Dabœ`cia *p*oliifòlia. The second region includes the Castiles, Estremadura, Aragon, &c.; this is the region of dryness, over which the Merino sheep wander, and in which the olive and the silkworm are products of culture. "This region," Capt. Cook observes, "contains the vast pine forests of Aragon, of the Sierra de Cuenca, Segura, and the Guadarrama, and of the central range of Castile. It is characterised by the Spanish ilex; the Quércus *Tòza;* and the Quércus *prásina*, or a species presumed to be so, which is widely spread over its middle elevation; by the white cistus, which grows in prodigious quantities in some of the middle parts; and by the absence of those which are enumerated as marking the divisions on each side of it." The third region lies along the coast of the Mediterranean, and is characterised by a dry and burning summer, and a mild winter. In this region the lemon, the orange, the palm, the sugar-cane, the cotton tree, the Ceratònia Síliqua, are the common ligneous plants in cultivation. This region contains no extensive forests, but abundance of orange orchards, olive grounds, and vineyards.

It would occupy too much space, to enter at such length into the ligneous vegetation of each region, as would do justice to the subject, and we must therefore refer the reader to Captain Cook's *Sketches*, or to an extract from them, made with the kind permission of the author, which will be found in the twelfth volume of the *Gard. Mag.* In the third part of this work, when we come to treat of particular species, we shall find much interesting matter, supplied from Captain Cook's volumes, respecting the genera Pìnus, A'bies, Làrix, and Quércus.

The most remarkable discovery made by Captain Cook in Spain, and which was made about the same time by Mr. Drummond, the British consul at Morocco, is, that the *alerce*, a timber which is of unparalleled durability, is from the Thùja articulàta. The roofs of the oldest churches in Spain are of this timber; and some of them, as that of the mosque of Cordova, &c., are known to have existed for nine centuries, the timber, as may be proved by a specimen sent by Captain Cook to the Horticultural Society of London, being still perfectly sound. Captain Cook, also, has collected much new and original information respecting the Q. I'lex; and it is remarkable, that the true Spanish evergreen oak (Q. I. austràlis), of which acorns can be procured in abundance from Gibraltar, had escaped the notice of both native and foreign botanists, till it was examined by Captain Cook.

SUBSECT. 3. *Of the Trees and Shrubs of Turkey and Modern Greece.*

AFTER having given, in p. 17., the enumeration of the trees and shrubs mentioned by Theophrastus, and in p. 164. those known to modern botanists, it will not be supposed that we can have much to add respecting such a country as Turkey, scarcely, as yet, in the dawn of civilisation; and where, unless the whole surface of the country can be called a garden, there are none but in the cemeteries.

These cemeteries are distinguished by their immense cypresses, and by the occasional appearance in them of the weeping willow. The most common tree in the neighbourhood of Constantinople is the Quércus Cérris, and, next to this, the Céltis austràlis, the pinaster, and the stone pine. Other trees, considered interesting in Britain, which abound in the neighbourhood of Constantinople, are the following: Cércis Siliquástrum, which is found clothing the shores of the Bosphorus and Mount Libanus; Ceratònia Síliqua, Cuprèssus sempervìrens horizontàlis, Diospỳros Lòtus, Elæágnus angustifòlia, the wild olive, Zízyphus vulgàris, Paliùrus aculeàtus, Mèlia *Azedaràch*, Acàcia *Julibríssin*, Pistàcia Terebínthus, and P. Lentíscus, and Smìlax áspera, and S. excélsa. S. excélsa climbs to the tops of the highest trees; and, descending in streaming branches, converts an avenue of trees into two lofty green walls, which, in autumn, are covered with a profusion of rich red berries. There are, also, Hédera Hèlix chrysocárpa; and Cérasus satìva, two varieties, one of which is of enormous size, and grows along the northern coast of Asia Minor, whence the original cherry was brought to Europe, and the other is found in the woods in the interior of Asia Minor, and produces an amber-coloured transparent fruit, of a most delicious flavour. These trees attain the height of 100 ft., with straight trunks of 40 ft. and upwards. *P*hœ`nix dactylífera, and *P*látanus orientàlis, are also frequent. "The Turks," Dr. Walsh observes, "on the birth of a son, plant a platanus, as they do a cypress on the death of one. In the court of the seraglio is a venerable tree of this species, which, tradition says, was planted by Mahomet II., after the taking of Constantinople, to commemorate the birth of his son, Bajazet II.; the trunk of which is 50 ft. in circumference. There is another, of more enormous size, at Buyuk-dere, on the Bosphorus: it stands in a valley, and measures 45 yards in circumference! It, in fact, now consists of fourteen large trees, growing in a circle from the same root, but separating at some distance from the ground. The Turks sometimes encamp here; and the Ben-Bashee pitches his tents in the centre of this tree of trees."

*C*ístus críspus, créticus, and *s*alviæfòlius cover all the hills of the Archipelago and Sea of Marmora. All of them have the hypocistus growing on their roots, a succulent parasite of a rich red colour, described by Dioscorides; *V*ìtex *A*'gnus-cástus, *N*èrium Oleánder, *Q*uércus *Æ*'gilops, *Q*. coccífera, and *Q*. *Taúzin* var. pubéscens, *P*ìnus *P*ináster var. marítima, and *P*. *P*ínea, *La*vándula *S*tœ`chas, *R*úscus racemòsus, Kölreutèr*ia* paniculàta, and a number of others. *B*úxus baleáricus grows wild on all the rocky surfaces both of European and of Asiatic Turkey, and the wood is sent to England in large quantities for the use of the wood-engraver, though it is found greatly inferior to that of the *B*úxus sempervìrens. This information respecting the trees and shrubs in the neighbourhood of Constantinople is taken from a very interesting paper on the subject, by Dr. Robert Walsh, which will be found in the *Transactions of the Horticultural Society of London* for 1824, and in the *Gardener's Magazine*, vol. i. p. 293.

The ligneous vegetation of the Ionian Islands is given by Pouqueville and Olivier, and resembles that of Greece generally. Whether any foreign species have been introduced, since these islands came under the protection of the British government, we have been unable to ascertain.

CHAP. IV.

OF THE TREES AND SHRUBS OF ASIA, AFRICA, AMERICA, AND AUSTRALIA, WHICH ARE SUITABLE FOR TEMPERATE CLIMATES.

In our notice of the ligneous flora of these countries, we shall confine ourselves entirely to such species as are known, or are supposed, to be suitable for enduring the open air in Britain; and, as in the preceding chapter, we shall chiefly confine ourselves to giving lists compiled from local floras. We shall take the different countries in the usual order of Asia, Africa, America, Australia, and Polynesia. Those who wish more extensive information on this subject, may consult some elaborate communications of M. Mirbel in the *Mémoires du Muséum*, vol. xiv. p. 378.; or, in an English dress, by Dr. Hooker, in Murray's *Encyclopædia of Geography*.

Sect. I. *Of the Trees and Shrubs suitable for Temperate Climates, indigenous or introduced, in Asia.*

According to our enumeration (p. 126.), 183 ligneous plants, which endure the open air in Britain, have been introduced from different parts of Asia, and chiefly from Siberia, Nepal, and China. Additions, as we have already observed, when noticing the flora of Asiatic Russia, may still be expected from the former country; and, considering the situation of China, and the character of its surface, when that immense territory comes to be explored by

European botanists, it will, in all probability, afford large additions to our parks and shrubberies. That Himalaya and other mountainous regions of India, temperate from their elevation, have many trees and shrubs in store for Britain, is rendered certain by the excellent *Illustrations of the Botany, &c., of the Himalayan Mountains* of Mr. Royle. That gentleman, who joins to the acuteness of the scientific botanist, the extended views of the general observer, and the knowledge of both Indian and European cultivation, considers that all the plants of regions in India elevated not less than 7000 ft. above the level of the sea, if not found in valleys, are likely to prove hardy in Britain. The following list is of species considered likely to be in this condition, or, at least, most of them. It has been prepared chiefly from Royle's *Illustrations;* but, in cases to which Mr. Royle's work has not yet been extended, or that do not come within its scope, from other sources; these are, Dr. Wallich's manuscript catalogue, to which Mr. Royle has both given the access and indicated the species likely to be fittest for selection in, and our *Hortus Britannicus.* In this list, all those names to which a star (*) is prefixed are, as in preceding lists, supposed not to be indigenous; the dagger (†), before a specific name, indicates that a species of that name from India has already been introduced into Britain ; and the point of interrogation (?), put before a specific name, implies a doubt as to the species being capable of enduring the open air in this country.

R*anunculàceæ.* C*lématis* globòsa, † montàna (*Gard. Mag.*, vol. x. p. 564.), † nepalénsis, pubéscens, *v*itifòlia, Buchanan*iàna.*

*Magnol*iàceæ. Mr. Royle has adverted to certain species being extant in Nepal that might, perhaps, live in the open air in Devonshire. Some of these are, *Mangliètia* insígnis; Michèl*ia* lanuginòsa, excélsa, *Kisòpa*, (?) *Doltsòpa.*

Menispermàceæ. Cissámpelos obtécta, † hirsùta; Stauntòn*ia* latifòlia, angustifòlia, Brunon*iàna*; Sphærostèma grandiflòrum, and other species. Cócculus (?) *l*aurifòlius.

Berberàceæ. *Bérberis* nepalénsis, † aristàta, † asiática, † Wallich*iàna*, † *C*orìaria, kumanaurénsis, floribúnda.

C*apparidàceæ.* *C*ápparis (?) obovàta, (?) nepalénsis.

Pittosporàceæ. Senàc*ia* † nepalénsis; Pittósporum eriocárpum.

*Ternströmi*àceæ. Eùrya acuminàta.

Aurantiàceæ. *Limònia* Laurèola.

H*ypericàceæ.* *H*ypéricum † cordifòlium, † pátulum, † uràlum, † oblongifòlium.

A*ceràceæ.* *A*'cer † oblóngum, cultràtum, caudàtum, sterculiàceum, villòsum; *Negúndo* **f*raxinifòlium, † Dobinæ'a (?) vulgàris.

Æsculàceæ. Pàv*ia* índica.

Sapindàceæ § *Millingtoni*èæ. Millingtòn*ia* simplicifòlia, dilleni*æfòlia*, púngens.

M*eliàceæ.* *M*èlia † *Azedarách*, * *Buckàyun* (from Europe).

V*itàceæ.* *V*ìtis parvifòlia, cymòsa, obtécta, macrophýlla, capreolàta; Ampelópsis himalayàna.

Zygophyllàceæ. Meliánthus himalayànus.

R*utàceæ.* *R*ùta † albiflòra, † * angustifòlia.

Xanthoxylàceæ. Xanthóxylum hostìle, alàtum.

C*oriariàceæ.* *C*oriària nepalénsis male, n. female.

Staphyleàceæ. Staphylèa Emòdi.

C*elastràceæ.* *E*uónymus tíngens, † echinàtus, vàgans, péndulus, frígidus, fimbriàtus, grandiflòrus, † japónicus, † Hamilton*iànus.*

A*quifoliàceæ.* *I*'lex dipyrèna, excélsa, serràta.

R*hamnàceæ.* *R*hámnus † virgàtus, † rupéstris *Royle*, purpùreus ; *P*aliùrus † virgatus; Berchèm*ia* flavéscens; Hovèn*ia* dúlcis; *C*eanòthus flavéscens.

Anacardiàceæ. *R*hús parviflòra, velutìna, *kakrasíngee*, † vernicífera (syn. *j*uglandifòlia), † *Búcku-Amèla*, † acuminàta; *Sàbia* parviflòra, campanulàta.

Leguminàceæ. *Caragàna* Moorcroft*iàna*, brevispìna, Gerard*iàna*, polyacántha, spinosíssima, versícolor : one of these has been raised in Edinburgh, or the neighbourhood. *A*strágalus strobilíferus, polyacánthus, Graham*iànus*, múlticeps; Cýtisus fláccidus; Colùtea † nepalénsis; Piptánthus † nepalénsis; Edwárdsia (?) móllis; Indigófera heterántha, † violàcea, Gerardiàna; Desmòdium tiliæfòlium, † nùtans, multiflòrum, maculàtum, sèquax; Acàcia (?) móllis.

Saxifragàceæ. Astílbe rivulàris.

Rosàceæ § Chrysobalàneæ. Prinsèpia ùtilis.

Rosàceæ § Potentílleæ. Rùbus rotundifòlius, cóncolor, ásper, tiliàceus, paniculatus, † pedunculòsus, ferox, † ásper, † dístans, † micránthus; Potentílla rígida.

Rosàceæ § Spiræàceæ. Spiræ`a callòsa *Thunb.*, or allied to it, † chamædrifòlia, † hypericifòlia, Lindleyàna, kamtschática, † nùtans; Kérria † * japónica.

Rosàceæ § Amygdàleæ. Amýgdalus † * commùnis; Pérsica † vulgàris, † læ`vis, salígna; Prùnus † * doméstica, bokhariénsis, *Alòocha*, * triflòra, † expánsa; Armenìaca himalénsis; Cérasus tomentòsa, *Púddum*, undulàta, capricìda, cornùta, nepalénsis.

Rosàceæ § Ròseæ. Ròsa Lyéllii, † Brunònii, † tetrapétala, Webbiàna, † macrophýlla, serícea, † * damascèna, † microphýlla, moschàta var. nepalénsis, Bánksiæ var. múltiplex.

Rosàceæ § Pòmeæ. Pýrus commùnis, cultivated varieties of, sínica, † *Páshia* (syn. variolòsa, ? índica *Wall.*), † lanàta, † crenàta (syn. vestìta), † baccàta, Màlus, cultivated varieties of, † stipulàcea, (Sórbus) foliolòsa; Cydònia † * vulgàris; Cotoneáster † frígida, † acuminàta, † affìnis, † microphýlla; † Nummulària † rotundifòlia; Eriobótrya † ellíptica; Photínia † integrifòlia, dùbia; Cratæ`gus glaúca, † crenulàta.

Granàteæ. Pùnica † Granàtum.

Tamaricàceæ. Myricària bracteàta, élegans.

Philadelphàceæ. Philadélphus tomentòsus; Deútzia stamínea, Brunoniàna, corymbòsa.

Passifloràceæ. Passiflòra (?) Leschenaúltii, (?) nepalénsis.

Grossulàceæ. *Ribes* † glaciàle, acuminàtum, himalénse, † Cynósbati, villòsum.

Araliàceæ. Hédera Hèlix and var. † chrysocárpa. Many other species of Hédera inhabit India, but not any, or but few, of them are likely to thrive in the open air in Britain.

Caprifoliàceæ. Caprifòlium † confùsum, † longifòlium, † chinénse, † japónicum; Lonícera diversifòlia, Webbiàna, Govaniàna, angustifòlia, serícea, obovàta, ellíptica, glaúca, depréssa, † Xylósteum, acuminàta, glabràta, lanceolàta; Abèlia triflòra; † Leycestèria formòsa; Sambùcus adnàta; Vibúrnum cotinifòlium, *Mullàha*, punctàtum, (?) erubéscens, nervòsum, cordifòlium, grandiflòrum; Hydrángea altíssima, vestìta (áspera *Don*), heteromálla, Adàmia, † (?) cyànea.

Cornàceæ. Córnus † oblónga, macrophýlla, nervòsa; Benthàmia † fragífera.

Vacciniàceæ. Vaccínium (Thibaúdia) Sprengèlii; Thibaúdia variegàta, setígera; Gaylussáccia (Thibaúdia) serràta; Cavendíshia nóbilis.

Myrsinàceæ. Mýrsine † bifària, † semiserràta, acuminàta.

Ericàceæ. Rhododéndron † arbòreum, aristàtum, † barbàtum, † cinnamòmeum † campanulàtum, formòsum, lepidòtum, † anthopògon, † setòsum; Andrómeda fastigiàta, formòsa, lanceolàta, villòsa, ovalifòlia, cordàta; Gaulthèria nummulariöìdes, trichophýlla.

Ebenàceæ § Styràceæ. Sýmplocos racemòsa, paniculàta.

Oleàceæ. O`lea ferrugínea, compácta, grandiflòra, robústa; *Syrínga* Emòdi; O`rnus floribúnda; Fráxinus xanthoxylöìdes.

Jasminàceæ. Jasmìnum † officinàle, dispérmum, revolùtum, † pubígerum, (?) glandulòsum, (?) chrysánthemum, (?) chrysanthemöìdes, (?) nànum, (?) hùmile.

Labiàceæ. Roýlea † élegans.

Solanàceæ. Lýcium † europæ`um.

Lauràceæ. Laúrus (?) odoratíssima.

T*hymeldceæ*. *D*áphne † cannábina, *Bhólica*, serícea *Don* (syn. salicifòlia *Wal.*), viridiflòra, mucronàta.

Santalàceæ. *O*sỳris nepalénsis.

E*læagnàceæ*. *E*læágnus † arbòrea, armàta; *H*ippóphæ † salicifòlia (syn. conférta).

E*uphorb*iàceæ. *B*úxus emarginatus; Pachysándra † coriàcea.

U*rticàceæ*. *M*òrus † * nìgra, sp. white-fruited, atropurpùrea, † índica ?, † tatárica, parvifòlia, serràta (syn. heterophýlla), lævigàta víridis, † * mauritiàna, * scándens. Some of these names are to be regarded as not established, and as more or less likely to be synonymous with others amongst them. Broussonèt*ia* integrifòlia.

U*lmàceæ*. *U'*lmus † eròsa (syn. effùsa *W.*), † integrifòlia, virgàta. These names are from Dr. Wallich's catalogue. In Mr. Royle's catalogue are three others, but Mr. Royle has advised that they may represent the same species. *C*éltis † orientàlis, (?) elongàta, politòria, tetrándra, (?) cinnamòmea, (?) móllis.

J*uglandàceæ*. *J*ùglans † règia ; Engelhárdt*ia* Roxburgh*iàna*, Colebrook*iàna*.

S*alicàceæ*. *S*àlix Lindley*àna*, obovàta, polyándra, † * babylónica, (?) ægyptìaca, élegans, grísea, kamaunénsis, eriostàchya, *pý*rina. The first five of these names are derived from Mr. Royle's catalogue and work . the rest are from Dr. Wallich's catalogue. In Mr. Royle's catalogue are six other names, but Mr. Royle has told us that they may represent the same species as certain of the names above. *P*ópulus cordàta, acuminàta, *p*yrifórmis, ciliàta, sp.

Cupulíferæ. *Q*uércus annulàta, † dealbàta, incàna, polyántha, lanàta, floribúnda, laxiflòra, dentòsa, semecarpifòlia, lamellòsa, *l*appàcea, spicàta, fenestràta, dilatàta, lanceæfòlia, † lanuginòsa, † *Phullàta*. These names are from Dr. Wallich's catalogue, and are exclusive of several others that are those of species which Mr. Royle deems likely to be too tender to thrive in Britain. Mr. Royle has in his own catalogue names, distinct from Dr. Wallich's, of seven kinds, of which some may be identical with, some distinct from, those represented by Dr. Wallich's names. *C*astànea índica, *t*ribulöìdes, (?) microcárpa, (?) sphærocárpa. *C*órylus lácera, ? fèrox ; in Mr. Royle's catalogue are the names cashmeriénsis and scabérrima, which may represent the same kinds as the preceding, or distinct ones. *C*árpinus vimínea, *f*agínea.

B*etulàceæ*. *B*étula *Bhojpáttra* (syn. ùtilis), acuminàta, cylindrostàchya, nítida; and, in Mr. Royle's catalogue, three other names of as many kinds, that may be identical with three of those above, or distinct. *A'*lnus (?) nepalénsis.

P*latanàceæ*. *P*látanus † orientàlis.

M*yricàceæ*. *M*yrìca sápida.

T*axàceæ*. *T*áxus baccàta ?, † nucífera ?

Coníferæ. * *P*ícea Webb*iàna* (syn. *A'*bies spectábilis), dumòsa (syn. Brunon*iàna ; P*ìnus † excélsa, † Gerard*iàna* (syn *Neòza*), † Smith*iàna* (syn. Morínda), *C*èdrus † *Deodàra ; C*upréssus † * sempervìrens, † torulòsa; *E'*phedra Gerard*iàna*; *J*uníperus squamàta, † * chinénsis, * dimórpha, † recúrva, religiòsa, † excélsa, commùnis ?; *T*hùja † * orientàlis, † nepalénsis.

Whoever wishes to become acquainted with the ligneous flora of Himalaya should have recourse to Mr. Royle's *Illustrations ;* it will be found to be one of the most scientific and comprehensive works of the kind that have ever been published; embracing, not only the scientific botany and natural history, including the geology, of the district, but the geographical distribution of species and their properties and uses: the whole being generalised with reference to Lower India and Europe.

Of the trees and shrubs of temperate climates, which have been introduced into the different countries of Asia, we profess to know but little. Not many foreign ligneous plants, we suppose, have been added to the ligneous flora of Siberia or Tartary : but the hardy fruit trees and fruit shrubs of Europe have been cultivated for a number of years in the gardens of some of the native princes of India; and many of our ornamental trees and shrubs have been transported to the gardens of our public officers in that country, and to the botanic gardens established by government. This might be done to a great extent, as Mr. Royle has shown, in the mountainous districts of Himalaya, as well as in other hilly and mountainous regions, both of India and China.

Of that part of the ligneous flora of China which is hardy, very little is known. The following list of some of the ligneous species which inhabit China, and of a few of those which inhabit Japan, has been prepared from these three sources: — 1. Enumeratio Plantarum quas in China boreali collegit Dr. Al. Bunge, anno 1831 : this enumeration is published in the *Mémoires presentés à l'Académie des Sciences de St. Petersbourg*, tome ii. livra. 1. et 2., 1833. 2. From Royle's *Illustrations*, in which a sketch of the climate and plants of China is presented, relatively to comparison with the climate and plants of the Himalaya. 3. From our *Hortus Britannicus*. The sign (?) denotes, in this list, as well as in the preceding, doubt of hardihood of the species to which it is applied.

Ranunculàceæ. *Clématis* intricàta, *Pæònia Moútan* and varieties of it.

Magnoliàceæ. Magnòlia conspícua.

Menispermàceæ. Menispérmum däùricum, Stauntònia, (?) *Kadsùra* japónica.

Berberàceæ. *Bérberis* sinénsis.

Sterculiàceæ. Stercùlia pyrifórmis.

Tiliàceæ. *Tília*, (?) Gréwia parviflòra.

Ternströmiàceæ. *Thèa* víridis, Caméllia (?) japónica.

Hypericàceæ. *Hypéricum* pátulum, (?) Ochránthe pállida.

Aceràceæ. *A'cer* truncàtum, palmàtum (Japan).

Æsculàceæ. *Æ'sculus* chinénsis.

Sapindàceæ. Xanthóceras sorbifòlia, Kölreutèria paniculàta.

Meliàceæ. *Mèlia*.

Vitàceæ. *Vìtis* vinífera, bryoniæfolia, ficifòlia, humulifòlia, serianæfòlia, aconitifòlia; Ampelópsis.

Xanthoxylàceæ. *Ailántus* glandulòsa ; Xanthóxylum (?) Avicénnæ, (?) nítidum.

Staphyleàceæ. Staphylèa.

Celastràceæ. Celástrus articulàtus; *Euónymus* micránthus, chinénsis.

Aquifoliàceæ. *I'lex*, a sp. of, allied to Aquifòlium.

Rhamnàceæ. *Rhámnus Theèzans ;* *Zízyphus* vulgàris 1 spinòsa, vulgàris 2 inérmis, parvifòlia, globòsa, (?) sinénsis, (?) álbens, (?) nítida; (?) Hovènia dúlcis.

Anacardiàceæ. (?) *Pistàcia* chinénsis; *Rhús* Cótinus, *ailantöìdes*, (?) vernicífera (Japan), (?) succedànea.

Leguminàceæ. *Sophòra* japónica (China and Japan), chinénsis; Indigófera micrántha, macrostàchya; *Caragàna Chamlàgu*, microphýlla; Lespedèza macrocárpa; Wistària Consequàna ; Gledítschia chinénsis, heterophýlla; *Cércis* chinénsis; *Acàcia* (?) macrophýlla, (?) *Nèmu*.

Rosàceæ § *Amygdàleæ*. *Amýgdalus* commùnis, pedunculàta, p. múltiplex, p. polýgyna; *Pérsica* vulgàris ; *Cérasus* chinénsis 2 pluripétala (or flòre plèno, syn. *Amýgdalus* pùmila), japónica (Japan), j. múltiplex (Japan), serrulàta, salícina, Pseùdo-*Cérasus*; *Prùnus* doméstica?, trichocárpa, pauciflòra, hùmilis 1 glabràta, hùmilis 2 villósula; *Armenìaca* vulgàris.

Rosàceæ § *Spiræàceæ*. *Spiræ'a* tríloba, dasyántha, sorbifòlia, callòsa; Kérria japónica pluripétala (or flòre plèno) (Japan).

Rosàceæ § *Potentílleæ*. *Rùbus* purpùreus, cratægifòlius, (?) parvifòlius, (?) refléxus.

Rosàceæ § *Ròseæ*. *Ròsa* índica, odoràta, longifòlia, Roxbúrghii, flavéscens, nívea, semperflòrens, Lawrenceàna, multiflòra, Grevíllei, sínica, Bánksiæ, B. flòre lùteo, microcárpa, bracteàta, b. scabricaúlis, pimpinellifòlia, rugòsa.

Rosàceæ § *Pòmeæ*. *Pýrus* floribúnda, dioíca, spectábilis, betulæfòlia; *Cydònia* sinénsis, japónica; Eriobótrya japónica (Japan); Photínia serrulàta; *Cratæ'gus* pinnatífida.

Calycanthàceæ. Chimonánthus fràgrans (Japan), f. lùteus (Japan), f. grandiflòrus.

Granatàceæ. Pùnica *G*ranàtum, and the white-flowered and pluripetalous varieties.

Tamaricàceæ. *Tá*marix *j*unipérina, chinénsis, (?) índica.

Philadelphàceæ. Deùtz*ia* grandiflòra, parviflòra, scábra (Japan).

Grossulàceæ. *Ribes* *C*ynósbati.

Hamamelidàceæ. *H*amamèlis chinénsis.

Cornàceæ. *Aúcuba* japónica (China and Japan).

Caprifoliàceæ. *C*aprifòlium chinénse, longiflorum, Lonícer*a* flexuòsa, *S*ambùcus racemòsa, *V*ibúrnum (?) fràgrans ; Abèl*ia* (?) chinénsis, (?) uniflòra; Hydrángea Horténs*ia*.

Ericàceæ. *R*hododéndron Fárrer*æ*, (?) leucánthum ; Azàlea (?) macrántha, (?) Andrómed*a*.

Ericàceæ § *Vacciniècæ.* *V*accínium (?) formòsum.

Ebenàceæ. *Diospy̆ros* *Lò*tus, *Schi-tse.*

Oleàceæ. *O'*lea, *L*igústrum lùcidum 1 floribúndum; *Syrínga* chinénsis; *O'*rnus floribúnda.

Jasminàceæ. *J*asmìnum (?) angulàre, flóridum.

*Asclepia*dàceæ. Períploca (?) sèpium.

*Bignoni*àceæ. *Catálpa syringæ*fòlia.

Thymelàceæ. *D*áphne cannábina, (?) Passerìna *C*hamædáphne.

Solanàceæ. *L*y̆cium chinénse, turbinàtum, Trew*iànum.*

*Euphorbi*àceæ. (?) Phyllánthus ramiflòrus, *A*ndráchne chinénsis.

Urticàceæ. *M*òrus álba and varieties, sinénsis, constantinopolitàna; Broussonèt*ia* papyrífera.

Ulmàceæ. *U'*lmus pùmila, *C*éltis chinénsis.

Juglandàceæ. *J*ùglans règia.

Salicàceæ. *S*àlix babylónica, *P*ópulus.

Betulàceæ. *B*étula.

Cupulíferæ. *Q*uércus densifòlia, chinénsis, and three other species; *C*astànea vésca, the large-leafed chestnut, dwarf chestnuts.

Coníferæ. Pines, fir, larch; *P*ìnus chinénsis, Masson*iàna*; Cunninghàm*ia* lanceolàta; *T*hùja orientàlis; *J*uníperus chinénsis, glaúca; *C*upréssus, Salisbùr*ia* *a*diantifòlia (Japan).

The northern provinces of China, Mr. Royle observes, are more European in their flora than any parts of the plains of India; and the flora of the mountains has an almost universal identity of genera with that found covering the elevated belt of Himalaya. From these and other remarks we conclude that many species of trees and shrubs in China, now wholly unknown to us, will at some future time be added to the British arboretum.

The Chinese, through the European residents at Canton and other seaports, have become possessed of various of our ornamental ligneous plants. Mr. Reeves (*Gard. Mag.*, vol. xi. p. 437.) mentions that Magnòl*ia* grandiflòra was introduced at Macao by Mr. Livingston, previously to 1830; and M. acuminàta, glaúca, and tripétala, soon afterwards. The recent discovery of the tea shrub in the province of Assam, through an extent of territory which occupied a month's journey, shows how little of the ligneous flora of that part of the world is yet known. (See *Dr. Wallich*, in *Gard. Mag.*, vol. xi. p. 429.)

SECT. II. *Of the Indigenous and Foreign Trees and Shrubs of Africa.*

THE number of ligneous species which the British arboretum has obtained from Africa, including the Canary Isles, appears to be 23; a number larger than might be expected, considering the tropical situation of this part of the world, and that its mountains are less elevated than those of Asia. Barbary has supplied 13 of these 23 species; because, being situated on the shores of the Mediterranean, its climate is comparatively temperate. More may, perhaps, be received from the interior of the country, and from the African islands; but, considering that the floras of these islands, and of Egypt and Southern Africa, have been pretty fully explored, our hopes of further additions, fit to endure our climate, are not very sanguine.

The trees and shrubs of temperate climates introduced into Africa must necessarily be very few; and till lately they were limited, perhaps, to a few shrubs in the gardens of the British consuls. Since the introduction of European improvements into Egypt, however, the paçha has established an English garden under the care of an English gardener, Mr. Traill, who is endeavouring to acclimatise the plants and trees both of temperate and tropical climates. Algiers, which came into possession of the French in 1830, is receiving from that nation of naturalists many European plants; as appears in detail in the *Annales de la Société d' Horticulture de Paris* for 1831, and in the *Gardener's Magazine*, vol. xi. p. 632. A nursery has been established by the French authorities, which is said to contain 25,000 trees, bushes, and plants, for the purpose of experiment and naturalisation. It occupies 80 acres, and is under the care of a director and twenty men. Such an establishment may be referred to as one worthy of imitation in colonising a new country.

SECT. III. *Of the Indigenous and Foreign Trees and Shrubs of America.*

BY far the greatest and most interesting accessions to the British arboretum have been received from North America; but, as some hardy species have also been received from the southern division of that immense country, we shall devote a subsection to each.

SUBSECT. 1. *Of the Indigenous and Foreign Trees and Shrubs of North America.*

THE introduction of woody plants from North America into Britain may be said to have commenced with the missionaries sent out by Compton, Bishop of London, about the end of the seventeenth century, and to have continued without interruption ever since. Some species were, doubtless, introduced by Sir Walter Raleigh and others; but the practice of sending out collectors to send home objects of natural history undoubtedly began about the period we have mentioned. We have seen, in preceding parts of this history, that Bannister, Catesby, Garden, John and William Bartram, André Michaux, Fraser, Lyon, and Douglas are the names of the collectors to whom we are chiefly indebted: and that Compton, the Duke of Argyll, Lord Petre, the Duke of Richmond, Ellis, Dr. Uvedale, Dr. Fothergill, and, above all, that most excellent man Peter Collinson, a quaker and linendraper, were the principal amateurs. These gentlemen, and Gray, Gordon, and other nurserymen, in Britain, and Du Hamel, Lemonnier, and Maréchal de Noailles, in France, were the principal persons who encouraged the collectors. Much, also, is due to those American and European authors who have explored the interior of the civilised portion of America, and published the result of their labours. From the *Flora* of Pursh, edit. 1814, we have made the following enumeration of the woody plants of North America not indigenous to Britain.

R*anunculàceæ*. *A*trágene americàna; *C*lématis virgínica, cordàta, holoserícea Wálter*i*, críspa, reticulàta, Viórna, Catesby*àna*; Xanthorhìza *a*piifòlia.

*Winter*àceæ. Illícium floridànum, parviflòrum.

*Magnol*iàceæ. Magnòl*ia* grandiflòra ellíptica, grandiflòra obovàta, grandiflòra lanceolàta, glaúca, longifòlia, macrophýlla, tripétala, acuminàta, cordàta, auriculàta, pyramidàta; Liriodéndron Tulipífera, T. var. obtusíloba.

Anonàceæ. *Asímina* tríloba, parviflòra, pygmæ̀a, grandiflòra.

Menispermàceæ. Menispérmum canadénse, c. var. lobatum; Cócculus carolìnus, Schizándra coccínea.

Berberídeæ. *Bérberis* canadénsis, Mahòn*ia*, *A*quifòlium, nervòsa.

Cistíneæ. Hudsòn*ia e*ricöìdes.

M*alvàceæ*. *H*ibíscus *Mánihot.*

T*iliàceæ*. *T*ília glàbra, laxiflòra, pubéscens, p. var. leptophýlla, heterophýlla.

*Ternströmi*àceæ. Gordòn*ia* Lasiánthus, pubéscens, Stuárt*ia* virgínica, Malachodéndron ovàtum.

H*ypericíneæ*. *A*'scyrum Crúx A'ndre*æ*, *h*ypericoïdes, amplexicaúle; *H*ypéricum Kalm*iànum*, frondòsum, amœ'num, prolíficum, nudiflòrum, glaúcum, densiflòrum, *g*alioïdes, *a*spalathoïdes, fasciculàtum, tenuifòlium.

A*cerineæ*. *A*'cer rùbrum, dasycárpum, barbàtum, sacchárinum, nìgrum, macrophýllum, circinàtum, striàtum, montànum; *Negúndo f*raxinifòlium.

Hippocastàneæ. *Æ*'sculus glàbra, pállida; Pàv*ia*, rùbra, hýbrida, flàva, macrostàchya.

Sapindàceæ. Sapíndus ? * Saponària.

V*it s*. *V*ìtis *L*abrúsca, æstivàlis, æ. var. sinuàta, cordifòlia, ripària, rotundifòlia, palmàta; Ampelopsis cordàta, *h*ederàcea, hirsùta, bipinnàta.

Xanthoxýleæ. Xanthóxylum *f*raxíneum, tricárpum; *P*tèlea trifoliàta, t. var. pubéscens.

Staphyleàceæ. Staphylèa trifòlia.

C*elastrìneæ*. *C*elástrus scándens, bullàtus; *E*uónymus americànus, angustifòlius, atropurpùreus.

I*licíneæ*. *I*'lex opàca, laxiflòra, *Cassìne*, *Dahoón*, angustifòlia, a. var. *l*igustrifòlia, vomitòria, *p*rinoïdes, canadensis, *M*yrsinìtes; *P*rìnos verticillàtus, ambíguus, lævigàtus, lanceolàtus, glàber, coriàceus, c. var. angustifòlius.

R*hámneæ*. *R*hámnus franguloïdes, *a*lnifòlius, caroliniànus, lanceolàtus, minutiflòrus; *C*eanòthus americànus, intermèdius, sanguíneus, microphýllus; Berchèm*ia* volùbilis.

Anacardiàceæ. *R*hús typhìna, glàbra, élegans, viridiflòra, pùmila, vérnix, copallìna, Toxicodéndron, radìcans, r. var. microcárpa, aromática.

Leguminòsæ. Robín*ia* Pseùd-*A*càcia, viscòsa, híspida, macrophýlla; Wistàr*ia* frutéscens; *C*ássia occidentàlis, *l*igústrina; *C*ércis canadénsis, c. var. pubéscens; Virgíl*ia* lùtea, *C*ýtisus rhombifòlius; Amórpha fruticòsa, f. var. emarginàta, f. var. angustifòlia, microphýlla, pubéscens, canéscens; Gledítsch*ia* triacánthos, t. var. inérmis, brachycárpa, monospérmia; Gymnócladus canadénsis.

Chrysobalàneæ. Chrysobálanus oblongifòlius.

A*mygdàleæ*. *C*érasus virginiàna, serótina, canadénsis, caroliniàna, semperflòrens, boreàlis, pennsylvánica, nìgra, hyemàlis, pygmæ'a, pubèscens, pùmila, depréssa, chicàsa; *P*rùnus marítima, doméstica var. myrobálana.

R*osàceæ*. *R*òsa parviflòra, nítida, lùcida, gemélla, Lyòn*ii*, carolìna, *r*ubifòlia, lævigàta, suavèolens, pendulìna, lutéscens; *R*ùbus villòsus, strigòsus, canadénsis, cuneifòlius, occidentàlis, híspidus, triviàlis, flagellàris, inérmis, spectábilis, odoràtus; *S*piræ'a *s*alicifòlia, *s*. var. latifòlia, tomentòsa, *h*ypericifòlia, *c*hamædrifòlia, c. var. mèdia, *b*etulæfòlia, *o*pulifòlia, capitàta, díscolor, *s*orbifòlia; *P*úrsh*ia* tridentàta, Potentílla floribúnda.

Pomàceæ. *P*ýrus coronària, angustifòlia, microcárpa, americàna, *a*rbutifòlia, melanocárpa; *Amelánchier* Botryàpium, ovàlis, sanguínea; *C*ratæ'gus *a*piifòlia, spathulàta, turbinàta, coccínea, *p*opulifòlia, *p*yrifòlia, ellíptica, glandulòsa, flàva, parvifòlia, punctàta rùbra, punctàta aúrea, Crús-gálli spléndens, Crús-gálli *p*yracanthæfòlia, Crús-gálli *s*alicifòlia.

Calycántheæ. Calycánthus flóridus, glaúcus, lævigàtus.

P*hiladélpheæ*. *P*hiladélphus inodòrus, Lewís*ii*, grandiflòrus; Decumària bárbara, sarmentòsa.

Passiflòreæ. Passiflòra peltàta.

Cácteæ. *O*púntia vulgàris, Mammillària vivípara.

Grossulàceæ. *Rìbes* albinérvium, trífidum, rìgens, prostràtum, resinòsum, viscosíssimum, sanguíneum, Menziès*ii*, aúreum, recurvàtum, flóridum, laxiflòrum, rotundifòlium, hirtéllum, grácile, triflòrum, *o*xyacanthoïdes, lacústris, *C*ynósbati, speciòsum

Araliàceæ. Arália híspida, spinòsa, s. var. inérmis.

C*aprifoliàceæ*. *C*aprifòlium sempervìrens, ciliòsum, flàvum, gràtum, parviflòrum [? dioícum]; Lonícer*a* ciliàta, ciliàta álba, villòsa; Symphòria glomeràta, racemòsa; Diervíll*a* lùtea; Linnæˋ*a* boreàlis; *V*ibúrnum *p*runifòlium, *p*yrifòlium, Lentàgo, nùdum, obovàtum, obovàtum *p*unicæfòlium, *cassinö*ìdes, lævigàtum, nítidum, dentàtum, pubéscens, lantanöìdes, *a*cerifòlium, mòlle, Oxycóccus, edùle; *S*ambùcus canadénsis, pubéscens; Hydrángea arboréscens, cordàta, nívea, *q*uercifòlia.

C*órneæ*. *C*órnus flórida, circinàta, serícea, asperifòlia, stricta, álba, paniculàta, paniculàta álbida, paniculàta radiàta, alternifòlia.

Loranthàceæ. *V*íscum ? flavéscens.

*Cinchon*àceæ. Pincknèy*a* pùbens, Chiocócca racemòsa, Cephalánthus occidentàlis.

Compósitæ. *B*áccharis angustifòlia, glomeruliflòra, *h*alimifòlia; *B*uphthálmum frutéscens; *Iˋva* imbricàta, frutéscens.

V*accinièæ*. *V*accínium stamíneum, álbum, diffùsum, dumòsum, frondòsum, frondòsum lanceolàtum, pállidum, resinòsum viridéscens, resinòsum rubéscens, resinòsum lutéscens, corymbòsum, amœˋnum, virgàtum, fuscàtum, fuscàtum angustifòlium, *galèzans*, *l*igústrinum, tenéllum, angustifòlium, cæspitòsum, *m*yrtifòlium, crassifòlium, nítidum, *M*yrsinìtes, *M.* lanceolàtus, *M.* obtùsus, *b*uxifòlium, ovàtum, obtùsum; Oxycóccus macrocárpus, erythrocárpus, hispídulus.

E*ricàceæ*. Andrómed*a* tetragòna, *h*ypnöìdes, *p*oliifòlia angustifòlia, *p*oliifòlia latifòlia, calyculàta, angustifòlia, coriàcea, axillàris, axillàris longifòlia, Catesbæˋ*i*, acuminàta, floribúnda, mariàna, mariàna angustifòlia, speciòsa, speciòsa pulverulénta, racemòsa, arbòrea; Lyòn*ia* ferrugínea, rígida, paniculàta, frondòsa; *C*lèthra *a*lnifòlia, tomentòsa, scàbra, paniculàta, acuminàta; Mylocáryum *l*igústrinum, Cyríll*a* caroliniàna; *A'*rbutus *l*aurifòlia, Menziès*ii*, tomentòsa; Gaulthèr*ia* procúmbens, *Shállon;* Menziès*ia* ferrugínea, globulàris, *e*mpetrifórmis, cærùlea; Kálm*ia* hirsùta, glaúca, glaúca *r*osmarinifòlia, cuneàta, angustifòlia, angustifòlia ovàta, latifòlia; Epigæˋa rèpens; *R*hodòra canadénsis; *R*hododéndron máximum *r*òseum, m. álbum, m. purpùreum, punctàtum, catawbiénse; Azàlea calendulàcea flámmea, c. *c*ròcea, canéscens, nudiflòra coccínea, n. rùtilans, n. cárnea, n. álba, n. papilionàcea, n. partìta, n. polyándra, arboréscens, bícolor, viscòsa, nítida, glaúca, híspida; *L*èdum palústre, palústre decúmbens, latifòlium; Ammýrsine *b*uxifòlia; Bejàr*ia* racemòsa, *I'*tea virgínica, Pyxidanthèra barbulàta.

Symplocíneæ. Sýmplocos tinctòria.

S*tyràceæ*. *S*tỳrax grandifòlium, pulverulèntum, lævigàtum; Halès*ia* tetráptera, díptera.

Sapòteæ. *B*umèlia *l*yciöìdes, reclinàta, lanuginòsa, chrysophyllöìdes, serràta.

E*benàceæ*. *D*iospỳros virginiàna, pubéscens.

O*leàceæ*. *O*ˋlea americàna; Chionánthus virgínica, marítima; *O'*rnus americàna; *F*ráxinus *s*ambucifòlia, quadrangulàta, epíptera, acuminàta, caroliniàna, platycárpa, pubéscens, p. longifòlia, p. latifòlia, p. subpubéscens, *j*uglandifòlia; *Catálpa syringæ*fòlia.

A*pocýneæ*. *E*chìtes diffórmis, *Gelsèmium* sempervìrens.

*Bignoni*àceæ. Bignòn*ia* crucígera, caprcolàta; *Técoma* radìcans flámmea, radìcans coccínea.

S*olàneæ*. *L*ýcium caroliniànum.

Labiàtæ. *S*álvia coccínea.

V*erbenàceæ*. Callicárpa americàna.

Chenopòdeæ. *A'*triplex *H*álimus, Diòtis lanàta.

P*olygòneæ*. Callígonum canéscens.

L*auríneæ*. *L*aúrus Catesby*àna*, carolinénsis glàbra, c. pubéscens, c. obtùsa, *Benzòin*, *D*iospỳros, geniculàta, *Sássafras*.

T*hymelæˋæ*. Dírca palústris.

Santalàceæ. Nýss*a* villòsa, biflòra, cándicans, tomentòsa, denticulàta; Hamiltòn*ia* oleífera.

E*læágneæ*. *E*læágnus argéntea; Shephérd*ia* canadénsis, argéntea.

A*ristolochìæ.* *A*ristolòchia sípho, tomentòsa.

E*uphorb*iàceæ. Bòr*ya* porulòsa, *l*igústrina, acuminàta ; Stillíng*ia* *l*igústrina, sebífera.

U*rtíceæ.* *M*òrus rùbra.

U*lmàceæ.* *U′*lmus americàna, péndula, fúlva, alàta; Pláner*a* Richárd*i*, Gmelìn*i*; *C*éltis occidentàlis, crassifòlia, pùmila.

J*uglándeæ.* *J*ùglans nìgra, cinèrea; *C*àrya olivæfórmis, sulcàta, álba, tomentòsa, amàra, porcìna ficifórmis, obcordàta, aquática, myristicæfórmis.

S*alicíneæ.* *S*àlix cándida, Muhlenberg*iàna*, trístis, recurvàta, vestìta, Uˋva úrsi, cordifòlia, obovàta, planifòlia, pedicellàris, fuscàta, conífera, myricöìdes, *p*rinöìdes, díscolor, angustàta, longifòlia, Houston*iàna*, falcàta, nìgra, lùcida, rígida, cordàta, grísea, ambígua; *P*ópulus balsamífera, cándicans, trépida, monilífera, *b*etulæfòlia, grandidentàta, lævigàta, angulàta, heterophýlla.

B*etulíneæ.* *B*étula *p*opulifòlia, excélsa, nìgra, papyràcea, lénta, pùmila, glandulòsa ; *A′*lnus críspa, serrulàta, glaúca.

Cupulíferæ. Quércus *P*héllos, *P*héllos hùmilis, marítima, serícea, *m*yrtifòlia, vìrens, cinèrea, imbricària, *l*aurifòlia, *l*aurifòlia obtùsa, *a*grifòlia, heterophýlla, aquática, hemisphæ′rica, nàna, tríloba, nìgra, tinctòria, díscolor, coccínea, ambígua, rùbra, Catesbæˋ*i*, falcàta, palústris, Baníster*i*, obtusíloba, macrocárpa, *o*livæfórmis, lyràta, álba, álba repánda, *P*rìnus, bícolor, montàna, *C*astànea, *p*rinöìdes; *C*astànea vésca americàna, pùmila; *F*àgus ferrugínea; *C*órylus americàna, rostràta; *C*árpinus americàna, *O′*strya virgínica.

P*latàneæ.* Liquidámbar styracíflua.

M*yríceæ.* *M*yrìca cerífera, cerífera pùmila, carolinénsis, pennsylvánica; Comptòn*ia* *a*spleniifòlia.

H*amamelídeæ.* *H*amamèlis virgínica, macrophýlla ; Fothergíll*a* *a*lnifòlia, màjor, Gardèn*i*.

Coníferæ. *P*ìnus ìnops, resinòsa, Banks*iàna*, variabílis, rígida, serótina, púngens, *T*æˋda, palústris, *S*tròbus ; *A*ˋbies balsamífera, Fràser*i*, *t*axifòlia, canadénsis, nìgra, rùbra, àlba; *L*arix péndula, microcárpa; *T*axòdium dístichum; *C*upréssus *t*hyöìdes, *T*hùja occidentàlis; *J*uníperus commùnis depréssa, virginiàna, *S*abìna procúmbens, excélsa, barbadénsis; *T*áxus baccàta.

C*ycàdeæ.* Zàmia integrifòlia.

E*mpétreæ.* *E′*mpetrum nìgrum, Ceratìola *e*ricöìdes.

S*milàceæ.* *S*mìlax hastàta, hastàta lanceolàta, bòna-nóx, quadrangulàris Wálter*i*, *Sarsaparílla*, ovàta, álba, lanceolàta, pùbera, Pseùdo-chìna, rotundifòlia, cadùca, *l*aurifòlia, panduràta, circidifòlia.

P*álmæ.* *Sàbal* Adansòn*i*; *C*hamæˋrops serrulàta, hýstrix, *Palmétto*.

The number of trees and shrubs in the British arboretum, received from North America, is considered to be 528, and they comprise the greater part of the names in the foregoing enumeration. Still, as it is not always certain that the same names in our catalogue are applied to the same things, there may be a number of species described by Pursh which are not yet introduced into Britain. At all events, we have little doubt that, in the unexplored parts of North America, there are many species that will, at no distant day, find way to Europe.

The greater part of the trees and shrubs of Europe, which are remarkable either for beauty or utility, appear in the catalogues of the American nurserymen, more particularly in those of Prince of New York, and of Carr, the successor of Bartram, near Philadelphia. From a MS. which has been kindly sent to us by Dr. Mease, containing the dates of the introductions of a number of European trees into America, we find that some took place as early as the settlers there from this country; and that the introduction of European trees was in an especial degree accelerated by the establishment of tree nurseries. William Hamilton, Esq., of the Woodlands, near Philadelphia, is stated by all the collectors of plants in America, during the last century, to have had the most complete garden in the United States. It is said to have contained not only all the plants of America, but those of Europe and other parts of the world, which were considered of interest either for arts or medicine. In

Bartram's Botanic Garden there appears to have been the best collection in any nursery; and probably, at present, it is only equalled by that of Prince of New York. No nursery in America is superior to Bartram's for fine specimens of trees. The dimensions of some of these, with those of many others, of which accounts have been sent us, will be given when treating of each particular tree, in the third part of this work. (See also *Gard. Mag.*, vol. viii. p. 272.)

Part of the United States, and the Canadas, were visited by two excellent arboricultural observers; Mr. Robert Brown, formerly a nurseryman at Perth, and Mr. James Macnab, the son of the curator of the Edinburgh Botanic Garden, in the autumn of the year 1834; and an interesting notice of the distribution of different species of trees in the countries they passed through has been published in the *Quarterly Journal of Agriculture*, vol. v. p. 594., and will be found also in the twelfth volume of the *Gardener's Magazine*. Before landing at New York, the country appears to the stranger of a very dark and dismal hue, from the quantity of pines and red cedars which clothe the more conspicuous prominences; but, after landing, the whole, from the prevalence of fine trees and shrubs, appears like one vast garden. The stranger is strongly impressed with the beauty and number of trees, which are partly indigenous to the locality or the district, and partly introduced from more southern climates. The diversity of the forms of the trees, and the variety of their foliage, are most remarkable. No remains of ancient forests are observable, as might be supposed, these having been long since cut down for fuel; but forest trees of large size are frequently to be seen, covered to their summits with wild vines. Of these the *P*látanus occidentàlis, liriodendron, liquidambar, Gledítsch*ia* triacánthos, and the catalpa are preeminent. It is worthy of remark, that almost the only foreign trees conspicuous in the artificial scenery of America are, various kinds of fruit trees, the Lombardy poplar, and the weeping willow. The contrast between the regular position and round-tufted heads of the fruit trees and the lance-shaped heads of the poplars, and between both these trees and the wild luxuriance of the indigenous species, is very striking. About 67 miles up the country, on the river Hudson, a limestone district occurs, and on this the lively green of the arbor vitæ succeeds to the dark hue of the red cedar. All the uncultivated parts of the surface are covered with this tree, of different sizes, varying from 1 ft. to 20 ft. in height, and always of a pyramidal shape. The woods on both sides of Lake Champlain are very various. The principal trees are, the wild cherry (*C*érasus virginiàna), elms, walnuts, sugar maples, and the aspen poplar. The rocky grounds abound with arbor vitæ, and the "appearance of the lofty white, or Weymouth, pine, towering above the deciduous trees, on rising grounds at the base of the hills, of a dark aspect and nearly destitute of branches, was remarkable." The northern extremity of Lake Champlain exhibits the same trees, with the addition of the balm of Gilead fir. The only tree worth notice on the St. Lawrence river was the canoe birch (*B*étula papyràcea). At Montreal our travellers were much "surprised to see the great difference which the Canadian winter produces upon those species of ornamental trees which grace the lawns and cities of the United States. As examples, may be mentioned the *Ailántus* glandulòsa, the trees of which were quite small and stunted; Maclùr*a* aurantìaca seemed barely alive; and the mulberries were small and unhealthy. The weeping willows here are almost always killed in winter, although in the neighbourhood of New York the stem of this tree is seen averaging from 8 ft. to 15 ft., and sometimes 20 ft. in girt. None of the catalpas and magnolias, which prove so ornamental in the pleasure-grounds both of New York and Philadelphia, can be made to live here, with the exception of the M. glaúca, and it is in a very unhealthy condition. Taxòdium dístichum is also much dwarfed, and barely alive. Peaches in this part of the country do not succeed as standards; but several peach trees placed against garden walls possessed well ripened wood, and had every appearance of affording plentiful crops. The principal ornamental tree cultivated in this part of the country, on account of its beauty, is the Robín*ia* glutinòsa, which, during the months of June, July, and August, bears a profusion of delicate pink flowers, and does not attain a large size."

In the different islands of Lake Ontario "the hemlock spruce is abundant and of great size, as well as arbor vitæ, walnuts, oaks, sugar maples, and elms." Near Toronto, on the shores of the lake, the weeping willow is healthy and luxuriant, and there are fine specimens of the locust tree, broad-leaved American beech, Canadian and Lombardy poplars, limes, oaks, ashes, elms, white pine, and hemlock spruce. *P*ìnus resinòsa (the red pine) was observed here for the first time; and it is by no means plentiful, having been found by our travellers only in this tract. The red birch they found a fine-shaped tree, with a trunk about 2 ft. in diameter, and a wide-spreading top like that of the beech tree in Europe. Near the Falls of Niagara is a "very extensive natural forest of sweet chestnuts; and what is very remarkable, the trees are placed at such regular distances that at first one would not hesitate to think that they had been planted by the hand of man. Not a great way from this, we observed a similar forest of large native oaks with precisely the same appearance of regular plantation: yet in both cases the arrangement was wholly the work of nature, the stronger individuals having probably smothered the weaker. In the neighbourhood of the falls, the trees were of very various descriptions, of great size, and more intermixed than we had hitherto seen. The tulip trees were of great height, with stems varying from 8 ft. to 12 ft. in circumference. Platanus trees, oaks, elms, limes, ashes, walnuts, beeches, poplars, and white pines, were all equally large and lofty. The hemlock spruce was scarcely seen, but the arbor vitæ seemed to take its place; for it is, without exception, the most abundant tree in the neighbourhood of the falls, very tall, and sometimes tapering to the height of 60 ft. Here, again, the red cedar was observed, with great abundance of dwarf-growing yew (*T*áxus canadénsis)."

Between Niagara and Hamilton was the only district in Canada where the *L*aúrus *Sássafras* was seen; the trees were all small, though remarkably healthy. The great natural forests of the country presented chiefly oaks of great height; and, when the ground became in the least degree elevated, white pines abounded. On a flattened, low, moist meadow was an extensive forest of the tamarack, or black American larch (*L*àrix péndula), long straggling trees with stems not exceeding 20 in. in circumference. Near New London the specimens of the trees, particularly of the platanus, were very large. Stems were measured of from 15 ft. to 20 ft. in girt, and many of the trees had straight trunks of from 10 ft. to 30 ft. high, before branching. "This tree is always seen largest and in greatest abundance along the moist banks of rivers, where the soil is deep and rich." The white pine, near New London, has a trunk varying from 13 ft. to 18 ft. in circumference; and some trees, which had been blown down, were measured, and found to average 160 ft. in length. The oaks here vary from 10 ft. to 15 ft. in circumference of trunk, with 45 ft. and 50 ft. of straight clear stems. Between New London and Goderich, a distance of 60 miles, the road passes through one continued dense forest. The trees were principally elms, averaging from 10 ft. to 25 ft. in circumference. Mixed with them were beeches, birches, and ashes of ordinary dimensions. On some low swampy ground, there was an extensive forest of hemlock spruce, and on an extended limestone ridge some splendid specimens of arbor vitæ. Horizontal sections of the white pines and hemlock spruce exhibited between 300 and 400 annual layers; oaks, 200; and elms, 300. On the whole, the neighbourhood of Goderich in Canada presented "a much greater and finer collection of large native trees than had before been seen; for, in addition to what have been named, were very large sugar maples, with splendid specimens of the black and white ash, limes, oaks, beeches, birches, cherries, with extensive tracts of balsam poplar (*P*ópulus balsamífera), and the black American larch, all growing in deep rich soil. On the banks of the Maitland river, many very noble specimens of platanus are seen, with stems varying from 18 ft. to 36 ft. in circumference. It is curious to observe, that when this tree exceeds 6 ft. in diameter, it seldom has a clear bole of above 10 ft., after which it branches much. Almost the whole of the large trunks are hollow. Along the banks of the lake, extending both ways from Goderich, we observed white American spruces (*A*'bies álba); but none of them exceeded 60 ft. in height, and 3 ft. in circumference.

"Just before entering the St. Clair river from Lake Huron, lofty white pines are seen towering on both sides; but, on entering the river, they entirely disappear on the Canada side, although, on the United States side, they continue for many miles; and a river, which runs into the St. Clair on that side, has, from the quantity of pines found upon its banks, been named the White Pine River. No very large trees are seen on the banks of the St. Clair, but, on getting back into the country, oaks, elms, limes, and walnuts abound. On the banks of the river, all the way down, many dwarf kinds of shrubby plants adorn its edges. Of these, the different kinds of plums and cherries, with the sweet-scented crab apple, and a variety of thorns, form the chief objects; but what was most gratifying to us, was the great abundance of stag's-horn sumach (*R*hús typhìna var. élegans), now loaded with large heads of scarlet fruit.

"Crossing Lake Erie to Cleveland, United States, we have, in addition to the ordinary forest scenery, some fine specimens of tulip trees, *L*aúrus *Sássafras*, and cucumber trees (Magnòl*ia* acuminàta). The stems of the latter did not exceed 2 ft. in circumference. Passing through the interior of the country to Pittsburg, the surface was very irregular. The principal native tree on this line of road was the beech, which was seen spread over an extended plain, containing many fine trees. There was also an extensive forest of the larch; and, in similar situations to those before mentioned, bordering all the mixed woods as we proceeded along, was the dogwood tree (*C*órnus flórida). These trees, having taken on their autumnal hue (5th September, 1834), were rendered beautiful in consequence. Of this fine tree, none had been seen since leaving New York till now; and from this place it continued to be more or less plentiful, in the different routes which we took, till we reached New York again. It was much talked of by the inhabitants, and praised, on account of its profusion of large white blossoms early in spring, and its dark red leaves and scarlet fruit in the fall, or autumn. Before entering Pittsburg, the sloping wooded banks by the river side presented a rich appearance, from the quantities of rhododendrons, kalmias, azaleas, and andromedas, which covered them as underwood. The large trees were much the same as those before mentioned, with the addition of the chestnut-leaved oak and red maple (*A*'cer rùbrum), of which last some few trees on the banks of the Ohio river, near Pittsburg, measured 12 ft. in circumference. There were likewise some large natural trees of the honey locust.

"We left Pittsburg for Philadelphia by way of the Alleghany Mountains. On these the natural grouping of the trees and shrubs was most remarkable. On our first approach to these mountains, we observed the hemlock spruce, of various sizes, covering the banks, having the *R*hododéndron catawbiénse, and Kálm*ia* latifòlia as underwood. Proceeding up the mountain, large tracts of sweet chestnuts are passed through. Above this, extensive forests of oak; and on the highest summits, all over the mountains, were scraggy trees of the *P*ìnus rígida, or pitch pine, with dwarf shrub oaks as underwood. On crossing the different summits, it was curious to see the same arrangement throughout on either side. Having remained for several days on these mountains, our attention was very much taken up with the great natural forests situated on the extended plains between the highest summits. When any one species of a tree is met with, acres of the same are generally seen together. In this way we continued to pass through successive masses of a series of trees, of the various pines, magnolias, walnuts, poplars, and sour gums, or tupelo trees (Nýss*a* villòsa and sylvática), &c. All of these grow in deep rich soil, with the exception of the pitch pine, which was seen on the mountain tops; and, on poor rocky ground, at different elevations, throughout the mountains, the

Pìnus ìnops, púngens, and *Tæ*'da are seen; and on more fertile sheltered situations we find the Canadian Judas tree (*Cércis* canadénsis), *Laúrus Benzòin* and *Sássafras*, *Euónymus* àtro-purpùreus, with nettle trees, witch hazels, and mulberries; also a vast variety of other dwarf-growing trees and shrubs." (*Quart. Journ. of Ag.*, vol. v. p. 605.) These observations of Mr. Brown and Mr. Macnab are well calculated to give an arboriculturist an idea of what he might expect to meet with, in travelling in the northern states of North America. Those who have leisure to pursue the subject, and who wish to form an idea of the scenery of the southern states, may consult Bartram's *Travels*, already referred to p. 86.; Dwight's *Travels in New England;* and some interesting articles communicated by American correspondents to the *Magazine of Natural History*, more particularly in vol. vi. p. 97. and vol. viii. p. 529.

We include Mexico in North America, and have great hopes that some additions may be made to the British arboretum, from the mountainous regions of that extensive country. Some magnificent specimens of Coníferæ are said to exist in it, particularly an evergreen taxodium of enormous height. Dr. Coulter, it is believed, has discovered several new species of pines and firs, which are likely to prove hardy in Britain, as are almost all the resinous trees of other countries.

SUBSECT. 2. *Of the Indigenous and Foreign Trees and Shrubs of South America.*

THE trees and shrubs furnished by South America to the British flora are only 22: nor can it be supposed that that number will be materially increased, the botany of the country having been very generally explored by different botanists. Our hopes are chiefly from the temperate zones of the loftier mountains, and from the shores of the sea and the larger rivers. Mr. Mathews, who has been several years in South America as a natural history collector, speaks of lofty mountain ranges covered with forests, which have never yet been penetrated by civilised man. (See *Gard. Mag.*, vol. xi. p. 636.) The ligneous vegetation, however, of South America appears to be much less varied than that of North America, and to consist chiefly, in the warmer parts of the country, of palms, and in the more temperate regions, of pines, firs, and other Coníferæ.

With respect to the introduction into South America of trees and shrubs which are foreign to it, we find that the same tendency to equalisation of products has taken place here, as has been the case everywhere else where civilised man has established himself. European and North American trees and shrubs are to be found more or less in the government gardens of Rio de Janeiro, Buenos Ayres, the Caraccas, and other places, and in the gardens of old established European merchants and government officers. The tea shrubs of China, the mulberry, the mango of India, the peach of Persia, the pine-apple of Africa, properly a ligneous plant, and the apple of Europe, are all to be found in the neighbourhood of Rio.

SECT. IV. *Of the Indigenous and Foreign Trees and Shrubs of Australia and Polynesia.*

THE British arboretum has not yet received many additions from these extensive and little known regions; nor can it be conjectured whether they are likely to contain much that is suitable for our purpose, till something more is known respecting the height of the mountains in the interiors of the islands, especially of that of New Zealand. Very few ligneous plants have hitherto been introduced from the latter country; but, if, as there is reason to believe, the interior consists of a chain of mountains with their summits buried in perpetual snow, we may hope to reap a considerable harvest when they have been explored by botanists. Something also may reasonably be expected from Van

Diemen's Land, in addition to the species of eucalyptus, acacia, callistemon, and sida, which live as standards through the ordinary winters in the neighbourhood of London without protection.

A number of the ligneous trees and shrubs of Europe, and some also from other parts of the world, have been taken to New Holland and Van Diemen's Land, by the settlers; and every year packages of plants which stand the open air in England, as well as of house plants, are sent out by the nurserymen. In the botanic garden at Sydney there was in 1828, a collection, which included the fruit trees of every part of the world, as far as they could be collected, and also many of the principal European timber trees and flowering shrubs. An account of this collection by the then curator of the garden, Mr. Charles Fraser, will be found in the *Gardener's Magazine*, vol. v. p. 280. It is there stated that the European trees stood the extreme drought of the year 1827-28 better than those of warmer climates; and, while oranges, limes, shaddocks, guavas, &c., were completely burnt up, apples, pears, &c., stood the shock without any apparent injury. To give an idea of the "capabilities of the climate," Mr. Fraser states that, in "an exposed part of the garden, may be seen growing luxuriantly, in a dense thicket formed by themselves, the following trees; viz., the English ash and elm, Erythrìna Corallodéndrum in full flower, Bómbax heptaphýllum, Gymnócladus canadénsis, *F*ìcus elástica, Dalbérg*ia Síssoo*, *Téctona* grándis, *P*ìnus *P*ináster and halepénsis, *Catálpa syringæ*fòlia, the English lime and sycamore, the mossy-cupped and English oak, *A*càcia *t*amaríscina, Salisbùr*ia a*diantifòlia, the tea and olive, and many others."

The trees of Van Diemen's Land appear to be among the most gigantic of the whole world. Mr. James Backhouse, an English nurseryman who spent some time in Hobart Town and its neighbourhood, and has communicated some interesting information on the vegetation of that country to the *Gardener's Magazine* (see vol. xi. p. 388.), gives the following measurement of ten trees of the Eucalýptus robústa, or the stringy-bark tree. They all stood in the neighbourhood of the Emu river, and the circumference of all the trunks were taken at 4 ft. from the ground.

No. 1., 45 ft. in circumference; supposed height 180 ft. The top broken, as is the case with most large-trunked trees; the trunk a little injured by decay, but not hollow. The tree had an excrescence at the base 12 ft. across and 6 ft. high, protruding about 3 ft. No. 2., 37½ ft. in circumference. No. 3., 38 ft. in circumference; distant from No. 2. 80 yards. No. 4. 38 ft. in circumference; distant from No. 3. 56 yards. Nos. 3 and 4. were round trees, upwards of 200 ft. high. No. 5., 28 ft. in circumference. No. 6., 30 ft. in circumference. No. 7., 32 ft. in circumference. No. 8., 55 ft. in circumference; very little injured by decay; and upwards of 200 ft. high. No. 9., 40½ ft. in circumference; sound and tall. No. 10., 48 ft. in circumference; tubercled; tall; some cavities at the base; much of the top gone. A prostrate tree near to No. 1. was 35 ft. in circumference at the base, 22 ft. at 66 ft. 19 ft. at 110 ft. up; there were two large branches at 120 ft.; the general head branched off at 150 ft. the elevation of the tree, traceable by the branches on the ground, 213 ft.

In the *First Additional Supplement to the Encyclopædia of Agriculture* will be found portraits, drawn from nature, of several of the trees mentioned as having been measured by Mr. Backhouse, drawn by Mr. John Thompson, a friend of ours, and an excellent artist, settled at Sydney. The iron-bark tree (Eucalýptus resinífera) measured by Mr. Thompson is 200 ft. high, with a clean straight trunk of 130 ft. The most remarkable of these trees in appearance is the grass tree (Xanthorrhœ̀a arboréscens).

Mr. Thomas Backhouse has sown the seeds of several species of the trees and shrubs of Mount Wellington and other elevated and exposed situations in Van Diemen's Land, in his nursery at York, and he expresses a hope in a few years to prove their hardiness; and, as they are all evergreens, they will be valuable auxiliaries to our park scenery.

CHAP. V.

OF THE LITERATURE OF THE TREES AND SHRUBS OF TEMPERATE CLIMATES.

A HISTORY of trees and shrubs would be incomplete, without some notice of the literature to which the subject has given rise. In the earlier works on plants, trees and shrubs, as being the more conspicuous division of the vegetable kingdom, occupy a considerable space; and, in modern times, whole works have been exclusively devoted to them. It is only our intention to notice, in a very slight manner, the names of the more remarkable of the works which have been exclusively devoted to the history and description of trees and shrubs, referring, for a chronological enumeration of all the authors who have written on the subject in modern languages, to the second edition of our *Encyclopædia of Gardening*, and to a posthumous work of the late Mr. Forsyth (see *Gard. Mag.*, vol. xi. p. 596.), entitled *Bibliotheca Geoponica*, which will shortly be published.

We have already noticed Aristotle and Theophrastus, as the principal Greek authors who wrote on trees, and Pliny is almost the only Roman one. The information contained in the works of these authors, with some additions from the writings of Cato, Columella, Vitruvius, and others, was used in a new form, on the dawn of literature in the end of the 15th and the beginning of the 16th centuries, in the works on husbandry generally, by Crescentius in Italy (1471), by Fitzherbert in England (1523), Etienne in France (1529), Heresbach in Germany (1578), and Herrera in Spain (1595). The first author who wrote exclusively on trees and shrubs appears to have been Belon, a doctor of medicine of the faculty of Paris, who produced a small quarto volume, entitled *De Arboribus Coniferis, Resiniferis*, &c., printed at Paris in 1523, and illustrated with a number of engravings on wood. Our copy is the original edition, and consists of thirty-two printed pages, and twenty engravings. Different species of *J*uníperus and *C*upréssus, the *T*hùja orientàlis, *C*èdrus Libàni, and several pines and firs, including the *L*àrix, are described and figured; and a number of other plants are mentioned incidentally. Meursius published *De Arborum, Fruticum, et Herbarum*, &c., in one volume 8vo, at Leyden, in 1600; but, in this work, the medical properties of plants appear to be the main object of the writer. The next work exclusively devoted to the subject of trees is the *Dendrographia* of John Johnston, a Pole, whose work was published in one volume folio, at Frankfort, in 1662. In this work trees and shrubs generally are treated on, and fruit trees at considerable length. It is illustrated with numerous figures, and the object of the author seems to have been to direct attention to the trees which bore edible fruits, or were remarkable for their medical properties. In 1668 the *Dendrologia Naturalis* of Aldrovandus, in one volume folio, appeared at Bon. It is a very thick folio volume, illustrated by numerous engravings, and the medical qualities of the plants are chiefly insisted on. Aldrovandus was born at Bologna in 1557, and died in 1625; he was a great traveller, and one of the most laborious naturalists of the sixteen century.

In England, the first work exclusively devoted to trees and shrubs was Evelyn's *Sylva*, which was published in one volume folio, in 1664. Every one knows the influence which this work had in promoting a taste for planting trees throughout England. It went through several editions during the author's lifetime; and, since his death, an enlarged edition in 2 vols. 4to, with several engravings, edited by Dr. Hunter of York, was published in 1776; and again, with some improvements, in 1786. The first work, after Evelyn's, which was exclusively devoted to trees and shrubs was, the *Descriptive Catalogue of the Trees and Shrubs propagated for Sale in the neighbourhood of London*, by a Society of Gardeners, which we have noticed in p. 60. It forms a thin volume folio, and appeared in 1730. These are the only works of note, which appeared on the subject of trees exclusively, previously to the time of Linnæus.

With the exception of nurserymen's catalogues, and some works on planting and managing trees and plantations generally, nothing exclusively devoted to the subject of trees appeared in Britain, till Hanbury published his *Essay on Planting* in 1758: a ponderous folio never in much esteem, and of very little interest. Indeed, the only gardening book in England in which trees and shrubs were described, and treated of botanically as well as horticulturally, previously to the commencement of the nineteenth century, was the *Dictionary* of Miller. The Earl of Haddington, in Scotland, published a *Treatise on Forest Trees*, in 12mo, in 1760; but it can only be considered as a work descriptive of trees and shrubs generally. In 1771, Meader, gardener to the Duke of Northumberland at Syon House, published the *Planter's Guide*, which is little more than a list of trees, with an imaginary engraving showing their comparative heights. A similar list is given at the end of the second volume of Morel's *Théorie des Jardins*, the second edition of which appeared in 1802. In 1772, W. Butcher, a nurseryman at Edinburgh, published a *Treatise on Forest Trees*, already mentioned as a valuable work for the time at which it appeared; and, in 1777, Dr. Anderson, under the name of Agricola, published *Various Thoughts on Planting and Training Timber Trees*. *Planting and Rural Ornament* was published by William Marshall in 1796, in 2 vols. 8vo, one of which is devoted to the description of trees and shrubs, chiefly, as the author acknowledges, taken from Hanbury and Miller. In 1779, Walter Nicol published the *Practical Planter*, and subsequently the *Planter's Calendar*, an edition of which, edited, or rather, rewritten by Mr. Sang, and published in 1812, in 1 vol. 8vo, is the last and the best work on trees and shrubs which has appeared in Scotland.

With the first year of the nineteenth century appeared the *Planter and Forest-Pruner* of William Pontey; but this and the other works on planting of that author belong to the general subject of culture, rather than to the description and history of trees and shrubs. In 1803, Lambert's *Monograph of the genus Pinus* appeared in one volume folio, price twenty guineas; a second volume has since been added; and, in conformity with the spirit of the times, an edition has been published in two volumes 8vo, price 12*l*. 12*s*. In 1811, Dr. Wade of Dublin produced a descriptive work on the willow, entitled *Salices*, in one volume 8vo; and, in 1823, Mr. Henry Philips produced, in two volumes 8vo, *Sylva Florifera*, in which the more common ornamental trees and shrubs are treated of in a popular and agreeable manner. Passing over the *Woodlands* of Cobbett, which appeared in 1826, in one volume 8vo, we come to the most scientific work exclusively devoted to trees which has hitherto been published in England, the *Dendrologia Britannica* of P. W. Watson, which was completed in two volumes 8vo, in 1825. The first volume contains 80 plates, and the second 90 plates. The letterpress, with the exception of 72 pages of introductory matter, consists solely of technical descriptions of the figures, arranged in a tabular form under a given number of heads; a very effectual mode of preventing any point, necessary to be attended to in the description of a plant, from escaping the notice of the describer. In this respect, the work is superior to some of its contemporaries, in which the descriptions are sometimes rather disorderly if complete; and are often incomplete, apparently from want of being taken in some fixed and comprehensive order. Mr. Watson was a tradesman in Hull, who afterwards retired from business; and he was one of the principal persons who assisted in founding, and afterwards in laying out and managing, the Hull Botanic Garden, as stated in the introduction to his *Dendrologia*, p. xii. He died, we believe, in 1827. The only work hitherto published in England, which contains a description of all the hardy trees and shrubs in the country, in addition to that of all other plants, ligneous and herbaceous, described by European botanists, is Don's edition of *Miller's Dictionary*, in four volumes 4to, price 14*l*.

In France, the first really important work on trees, in modern times, is the *Traité des Arbres et Arbustes*, by Du Hamel du Monceau, which was published in Paris, in two volumes 4to, in 1755. In this work the nomenclature of Tournefort is followed, but the names of Linnæus are also given; it is illustrated with numerous figures, partly taken, as the author informs us, from the blocks which were used in the *Commentaries* of Mathiolus; and partly engraved on purpose for the work. The first volume contains 368 pages and 275 engravings, and the second 387 pages and 199 engravings. The original edition is not very common, and, when met with in London, sells at from thirty to forty shillings. A new edition of this work was commenced in the year 1800, and it was completed in seven volumes folio in 1819. The letterpress of these volumes was prepared by Mirbel, Loiseleur Deslongchamps, and other botanists; and the drawings were by Redouté, Bessa, &c. The published price of a royal folio copy was 124*l.* 10*s.*, and of a common copy nearly 100*l.* The species are arranged according to the Linnæan system; and the number of engravings of trees and shrubs, including some engravings of fruits, amounts to 498. Both engravings and descriptions are of very unequal merit, and many of the former (at least in our copy, which is a large paper one) are altogether unworthy of the consequence attempted to be given to the work by large type, large paper, and other characteristics of the mode, now gone by both in France and England, of publishing for the few. As a proof of the truth of what we assert, large paper copies may now be purchased in London for between 30*l.* and 40*l.*, and small paper copies for twenty guineas.

In 1809, while the new edition of Du Hamel was slowly publishing in parts, the *Histoire des Arbres et Arbrisseaux*, by M. Desfontaines, appeared in two volumes 8vo, and is still a work of repute. In 1824, *Traité des Arbres Forestières, ou Histoire et Description des Arbres Indigènes, naturalisés, dont le tige a de trente à cent vingt pieds d'élévation*, &c., par M. Jaune St. Hilaire et M. Thouin, appeared in one volume 4to, with coloured plates, price 10*l.* The plates are badly executed, and the work, with the exception of the part written by Thouin, is of a very inferior description,

André Michaux, a notice of whose life has been given, p. 140., published *Histoire des Chênes de l'Amérique*, in one volume folio, in 1801; and his son, F. A. Michaux, published *Histoire des Arbres Forestières de l'Amérique Septentrionale*, in three volumes, large 8vo, in 1812. Of this work there is an English translation entitled the *American Sylva*, which was published in Paris, in 1817, at nine guineas plain, or twelve guineas coloured. F. A. Michaux's work contains 156 plates, including figures of all the oaks described in the *Histoire des Chênes*, and is an excellent work, which still maintains its price both in Paris and London. We ought not to pass unnoticed *Le Botaniste Cultivateur* of Du Mont de Courset, in seven volumes 8vo, which was completed in 1814, and which, though it contains herbaceous and house plants, as well as ligneous hardy plants, is yet more complete in its descriptions of the latter than any other work, except Du Hamel's. There is no French work which brings down the description and history of trees and shrubs to the present time; but, if we were asked what works we would recommend, as making the nearest approach to this, we should say, *Le Botaniste Cultivateur; Les Annales de Fromont; Le Bon Jardinier*, the edition of which work for the current year contains notices of all the plants newly introduced; and, above all, the excellent *Prodromus* of De Candolle, now in course of publication, and of which four volumes 8vo, price 5*l.*, have already appeared.

In Holland, the only work exclusively devoted to trees and shrubs which, we have heard of, is by Krause, and the title is, *Afbeeldingen der Fraaiste, Meestwitheemsche Boomen en Heesters*, &c. It appeared at Amsterdam in 1802, in one thick royal 4to volume, the price of which in London is 10*l.* The plates in our copy are executed in a very superior manner, and they are coloured with much more care than those of either Willdenow, Schmidt, or Du Hamel. Some of the German works describing the different kinds of wood were published at Amsterdam, as well as at Leipzic; particularly that published by Sepps, which appeared in one volume 4to, in 1773, at both places; and at Amsterdam, with a translation of the German descriptions into Dutch. It was published at about 15*l*., and sells in London for from 8*l*. to 10*l*.

In Germany, the first work exclusively devoted to trees and shrubs, which was published in modern times, was the *Harbkesche Baumzucht theils nordamerikenischer und fremder*, &c., of J. P. Du Roi, which appeared in two volumes 8vo. in 1771–2; to this succeeded the *Osterreiches allgemeine Baumzucht* of Schmidt, the first two volumes of which appeared in 1792, and the third in 1800 price 10*l*. This is an excellent work as far as it goes. The next German work which appeared was the *Berlinische Baumzucht* of C. L. Willdenow, in one volume 8vo, the second edition of which appeared in 1811. In this volume are described all the trees and shrubs which grew at the time in the Berlin Botanic Garden. It is observed by Watson, in his introduction to his *Dendrologia*, p. vii., that, in the *Berlinische Baumzucht*, "the parts of the plant in each description are placed in the same order, and not in the often vague, slovenly, and reiterated way of many botanic writers." In 1810, appeared the first number of *Abbildung der deutschen Holzarten*, &c., by F. Guimpel, C. L. Willdenow, and F. G. Hayne. It was completed with 36 numbers in 1820. It contains 216 coloured plates, and the price in London is 16*l*. In 1819, another work on the trees of Germany appeared, which included all those foreign species which stand the open air in that country. It is entitled *Abbildung der fremden in Deutschland ausdauernden Holzarten*, &c.; by F. Guimpel, F. Otto, and F. G. Hayne. It forms one volume 4to., contains 100 plates, and costs in London 6*l*. The Germans have a species of publication, or rather portable museum, which they call *Holzbibliothek* (Wood Library). A hundred or more sorts of wood, with dried specimens of the leaves, flowers, seed, and winter's wood of each species, are put loose into little cases about the size of 8vo volumes, and these are finished exteriorly like books, and the back lettered with the name of the wood in different languages. There are two libraries of this description, which are more particularly in repute; one published at Munich, and the other at Nuremberg. The former contains 100 sorts of wood, and costs about 100*l*., and the latter 80 sorts, and costs 80*l*. There are also engravings and descriptions of these woods, at various prices from 10*l*. to 30*l*.; one of the best of these is Hildte's, published at Weimar in 1798, price 15*l*.

We are not aware of any other work of magnitude exclusively devoted to the description and history of trees and shrubs, having been published in any of the other countries of Europe; but *in America*, besides the English translation of Michaux, already mentioned, which appeared there as well as in Paris, in 1817, there is the *Sylva Americana* of D. J. Brown, which was published at Boston in 1832. The cost in London of this work is 1*l*. 1*s*.

It will be recollected, that in this notice we have only given the titles of the principal works devoted *exclusively* to the description and history of trees and shrubs, those which treat on the formation and management of plantations, on forests and woodlands, and on planting trees generally, whether for useful or ornamental purposes, are exceedingly numerous, and will be passed under review in the Introduction to the Fourth Part of this work.

CHAP. VI.

CONCLUSION.

Two considerations may be drawn from the preceding history: the first, respecting the introduction of foreign trees and shrubs; and the second, respecting arboricultural literature.

On comparing the lists which we have given of ligneous plants, found in the different countries situated in temperate climates, which are not indigenous to Britain, with the catalogues of plants considered as already introduced into this country, it will be found that there are some names of species and varieties, in the lists of almost every country, that are not in British catalogues, and, consequently, not yet introduced. There are a number of names, for example, that are not in our *Hortus Britannicus.* Here, then, is an important use in giving these lists, because they point out to commercial gardeners, and to amateurs and travellers who are botanists, what trees and shrubs it is desirable to enquire after in other countries; and what they should endeavour, if possible, to introduce into their own. It may also be observed, that the same names that are in the lists in preceding chapters frequently occur in British catalogues; yet it is by no means certain that in every case they are applied to the same plants. Here, then, is another point calling for the exertions of the patriotic botanist or traveller; and it may be observed respecting this point, that it will always be the safest side to err on, to reintroduce plants which are already in the country, rather than to remain in any doubt respecting our possessing them. All trees and shrubs liable to great variations, and of great utility or ornament, such as the genera *Quércus*, *Pìnus*, *Pỳrus*, *Cratæ̀gus*, &c., ought to be introduced in all their varieties. We are persuaded that there are, in France and Spain, many interesting varieties of *Pìnus*, and of *Quércus Cérris* and *Q. Ìlex*, which have not yet found their way into British gardens. The *Quércus* austràlis, recently introduced in consequence of the information given by Captain Cook (see p. 171.), may be cited as a proof of this; and there are, doubtless, hundreds of species and varieties of trees and shrubs in North America, that have never yet been seen in Europe. There is, therefore, ample room for exertion, to those who wish to increase the botanical riches of their country; and more especially in the case of that kind of botanical riches which adds so conspicuously and permanently to its ornament, and to its useful resources. It would, however, be a very contracted view of this subject, to limit our views to the aggrandisement of the collections of trees and shrubs in Britain. The time for believing that the exclusive possession of any benefit contributes to the prosperity or happiness of nations is gone by; and the principles of free and universal exchange and intercourse are found to constitute the surest foundation for the happiness of nations. This is so obviously true in matters of botany and gardening, that it cannot for a moment be doubted.

If it is desirable for us that we should assemble in our country the trees and shrubs of every other similar climate, it must be equally desirable that the inhabitants of every other similar climate should possess all those species for which their climate is adapted; in short, it is desirable for the advancement of civilisation and human refinement, that all the trees and shrubs of temperate climates should be distributed throughout all those climates. This will, no doubt, be the case at some future period, when the civilisation of the whole world is comparatively equalised; and, in the mean time, it may be useful to offer such hints as will contribute towards so desirable a result.

One of the first steps towards the equalisation of the plants of different regions, of similar capacities for growing such plants, is, to determine, with something like precision, what the plants of each region are. This can only be done by assembling living specimens of all of them, or of such a class of them as it may be desirable to equalise, in one garden, and cultivating them there for some time, so as to determine the species and varieties. In old countries of limited extent, such as Britain, which have been examined by botanists for two or three centuries, the establishment of botanic gardens for determining the number of indigenous species of plants may be considered unnecessary; but this is far from being the case with such countries as North America, Upper India, China, Japan, Van Diemen's Land, and a number of others. It would, doubtless, contribute to the spread, all over the world, of the trees and shrubs of North America, if one part of them could be seen in a grand national garden at New York, and another in a garden or arboretum at Charlestown; or if the whole could be assembled in one grand park and pleasure-ground at Washington. We do not, however, expect this to be done; for, in the progress of civilisation and refinement in every country, there are many much more important points to be attended to than the culture of trees and shrubs.

With a view both to introduction into any particular country, and equalisation in all similar countries, the first thing that ought to be done, after the indigenous plants of the country are clearly determined, is to assemble, in one garden in the given country, all those of all other similar countries, with a view to determining what they are. Thus, in the case of trees and shrubs, all those mentioned in the preceding lists as being foreign, with reference to the trees and shrubs of Britain, ought to be assembled and proved in one grand British national garden; and the same thing ought to be done in a similar garden in every other country. The idea may be thought chimerical; but it is hard to say what will not be done by nations, when they come to cultivate with ardour the arts of peace and of refinement. The cooperation of individuals attached to the same pursuit may, in the mean time, contribute much to the advancement of that pursuit; and hence, though in the neighbourhood of London it might be difficult, or impossible, to induce the metropolis or the government to form an arboretum of 150 acres in extent, so as to exhibit in it all the species of trees and shrubs of temperate climates, that will grow with us in the open air; yet, if the proprietors of a certain number of estates within ten miles of London were to agree each to form a collection of the species or varieties of a particular genus, and to allow these to be examined by botanists, the same result would be obtained, at least as to accuracy of nomenclature, as if the whole of the genera and species were assembled in one national garden. We have explained this cooperative system, at length, in the *Gardener's Magazine*, vol. xi. p. 600., and it is needless to say that it is as applicable to every other country as to England, and to every other large town as to London. The practice might, therefore, be adopted in the neighbourhood of Edinburgh and Dublin; and in that of Exeter, for the south of England; Bristol and Liverpool, for the west; York, for a central situation; Norwich, Lincoln, and Hull, for the east; and Newcastle and Carlisle, for the north.

The number of works which have been written, exclusively devoted to the description and uses of trees and shrubs, shows, in a general point of view, the estimated importance of the subject by authors; and, when we consider the rapidity of the succession of these works within a comparatively limited period, it shows the accumulation of knowledge which is continually being acquired respecting ligneous plants. In this, as in all other branches of natural history, the attention of naturalists was first directed to the objects which more immediately surrounded them in their own country; afterwards it extended to adjoining countries; and lastly, which seems to embrace the most comprehensive view of the subject, to all the other countries in the world which are similarly circumstanced in regard to climate and all that affects the growth of trees and shrubs. Hence, the first books on dendrology were merely local catalogues, enumerating the medical, or such other properties, as, in the age in which these books were produced, excited most attention; while the last are scientific descriptions, with the geography, history, and uses in civilised society, of all the species and varieties enumerated.

The conclusion which we draw with reference to the literature of trees and shrubs is, that, though there are a great many excellent works on the subject already before the public in the English, French, and German languages, yet none of these works embrace the whole subject, and bring it down to the present time; and that, consequently, we are justified in our endeavour to comprise every thing which it is desirable to know, respecting the trees and shrubs which will stand the open air in Britain, in our present Encyclopædia.

PART II.

OF THE SCIENCE OF THE STUDY OF TREES.

The subject of trees, like every other subject, to be studied in the best manner, must be studied according to some methodical arrangement; and it is the purpose of this part of our work to lay down an outline of that method which we consider the best. By including in such an outline every particular which ought to be taken into consideration in the study of trees, we shall be the less likely to omit any of these particulars in giving the description and history of individual species; and the reader, also, will profit by having his attention previously directed to what this history and description ought to contain.

Trees may be studied both as individual objects, and as connected with other objects. As individual objects, they may be considered pictorially, or as component parts of the general scenery of a country; and botanically, as organised beings. As objects connected with others, trees may be studied with reference to nature, animate and inanimate, which may be considered as their natural history; and with reference to man in a state of civilisation, which may be called their economical history. We shall devote a short chapter to each of these subjects, and in a concluding one give a summary of the whole.

CHAP. I.

OF THE STUDY OF TREES PICTORIALLY, OR AS COMPONENT PARTS OF GENERAL SCENERY.

The study of trees, as component parts of landscape, may be carried on with very little knowledge of either their natural or their economical history; and, indeed, with less knowledge of any other objects or sciences, than most studies. Experience proves that a man may excel as a graphic artist with very little knowledge beyond his art; but, at the same time, it is also found, from experience, that all the greatest artists have been, more or less, philosophers; and hence, though a knowledge of the natural and economical history of trees may not be essential for the artist who studies them pictorially, it will yet be found to render him material assistance.

The subject of this chapter naturally divides itself into the study of the forms of trees and shrubs; the study of their character and expression; and the art of delineating them pictorially.

Sect. I. *Of the Study of the Forms of Trees and Shrubs.*

The first quality in a tree which will strike a general observer, coming to the study with only a few notions relative to form, will be its bulk, or the space that it occupies in the landscape which meets his eye. This bulk, or magnitude, resolves itself into height and width; and the consideration which immediately follows is, the outline that the tree makes against the sky, or against any other object which appears behind it. The next points that will probably attract notice are, the colour of the tree, and the degree of brilliancy of the lights which appear on its masses. Subsequently, the attention may be drawn to the trunk of the tree: for example, to observe whether it appears to be adequate to the support of the head; whether the head appears equally balanced on it; and whether it stands perpendicularly, or obliquely, to the surface on which the tree grows. The next point is, to observe whether the head is open and airy, or compact; and the last, whether the general form of the tree is regular or irregular. All these particulars are equally applicable to shrubs as to trees; with the exception of those which apply to the trunk, which is almost always wanting in what are pictorially, as well as botanically, considered as shrubs or bushes.

The different points, then, to which attention ought to be directed in the study of trees and shrubs as pictorial forms, are the following:—the height and breadth, or general magnitude, of the tree; the form and outline; the colour, light, and shade; the position of the trunk and branches; the mode of growth; the mode of tufting; the leaves, and the spray and buds.

The height and breadth of trees and shrubs vary according to their kinds, and to the soil, situation, and climate in which they grow. The trees of greatest height, in the temperate regions of the globe, are those of the pine and fir tribe; and they are those, also, which have least breadth in proportion to their height; because their branches, technically called frondose, have not the same tendency as those of other trees to increase in thickness with the age of the tree. The most bulky trees, or those which have the greatest width of head in proportion to their height, are some species of poplars, elms, oaks, &c., and the cedar of Lebanon, which, though it is a tree with frondose branches, yet, when it stands singly, has a head generally broader than its height. The highest shrubs, which grow independently of other objects of support, are, among evergreens, the common laurel, and, among deciduous kinds, the common lilac, the dogwoods, and the Guelder rose. Among the smallest trees, considered as pictorial objects, are the thorns and the spindle tree; and among the smallest shrubs are the heath, the furze, and some of the rhododendrons and azaleas.

The form and outline of trees and shrubs vary chiefly according to their kinds and their age, but partly, also, according to the physical circumstances in which they are placed; such as soil, situation, climate, and, perhaps, above all, proximity to other trees and shrubs. The natural form and outline of a tree can only be ascertained when the tree stands alone. The form which it assumes, when closely surrounded by other objects, will generally be found very different from its natural form; and, therefore, cannot be considered as characteristic of the tree or shrub. Even the climate, or the prevailing soil, or wind, will materially alter the form. The cedar, when planted in masses like the larch or the Scotch pine, produces, like them, a straight trunk, with the branches dying off from the bottom upwards; planted singly, its branches often become like so many trunks: in a sheltered situation its top will be pointed; and, in one exposed, it will become blunt or flattened, like the well-known cedars of the Chelsea Botanic Garden. Nearly the same observations may be made respecting all other trees: even the sturdy oak, in poor soils and cold elevated situations, becomes a bush; in rich soils and low situations it is a lofty tree, with a straight trunk; and in situations exposed to the sea breeze, it has the entire head of the tree leaning to one side, and presents an appearance altogether peculiar. *Fig.* 1. shows the effect of the sea breeze on two oaks growing on the boundary of Canford Heath, near Wimborne, in Dorsetshire; and numerous similar examples might be given from different parts of the island.

However various the outline of trees and shrubs may appear in detail, the general contour may always be reduced to some familiar or recognised form, easily retained in the memory: for example, to that of an oval, or that of an egg placed on its smallest end, which are the most common forms of trees, except in the case of those which have frondose branches; and that of an egg placed on its broadest end, or of a flattened cone, which are the most common forms of shrubs. The Lombardy poplar, the cypress, and some similar trees, may be said to have their heads in the form of an ellipsis: and others such as the common apple, thorn, &c., in that of a globe, or in that of a semiglobe. A few trees, more particularly in their young state, take the form of an inverted cone, such as the planera, as will appear by our figure of that tree at ten years' growth. Within these general forms, the greatest variety of outline

may be produced, by the receding or advancing of the terminations of the branches; by the forms of these terminations; by the manner in which they are clustered together; and by their being open or compact, regular or irregular, densely clothed with foliage, or only loosely covered.

Light and shade. The form of a tree or shrub is generally indicated by its outline against the sky; but that outline does not convey such a correct idea of the form as where the space enclosed by it exhibits both light and shade, which alone can give it the appearance of substance.

The capacities of different trees for receiving light vary according to the density of the masses of foliage. A compact round-headed tree, like the *Sórbus A'ria*, will receive and reflect the light in one large mass; a tree or shrub, the general form of which is composed of numerous smaller masses, more or less separated from each other, will reflect the light in smaller masses; and a thin tree, which, in many parts, may be seen through, will not reflect the light from any part in a conspicuous manner. In proportion as the light is reflected from one side of a tree, the other side will appear dark; and a tree or shrub thinly clothed with foliage will appear to be equally in light and shade throughout. Most light and graceful trees are of this description; but the want of the beauty produced by light and shade is compensated by the wavy direction of the stem, which gives the idea of gentle motion, and by the variety and intricacy of the tuftings, outline, and disposition of the smaller branches, spray, and leaves.

The colours of trees and shrubs vary not only according to the kinds, but according to the season of the year, the climate, soil, situation, age, and other circumstances. In general, the colours of spring, when the tree is leafing, are more fixed and determinate than those of autumn, when it is losing its leaves; because, in the former case, it depends chiefly on the nature of the tree, while in the latter it is materially affected by the weather, and also by the soil. The birch, the leaves of which, in most soils, in a wet autumn, will die off of a yellow colour, in a dry autumn will assume a deep red; and, on a peat bog, birch leaves generally die off of a pale yellow, while on a granitic soil they generally assume a bright red or purple. On the side of the tree next the sun, the leaves of all trees are of a brighter colour than on the shady side. Those trees and shrubs which vary least in colour, whether in summer or autumn, are the evergreens; and those which vary most are the oaks, the acers, and the thorns.

The trunks of trees vary as much as their heads; not only naturally, according to the kind of tree, but accidentally, according to the circumstances in which it has been placed by nature, or by the hand of man. In general, a detached tree exhibits a trunk clothed with branches from the ground upwards; but trees grown in masses generally exhibit naked trunks to a considerable height. In some species, as in the pine and fir tribe, the length of naked trunk is great, in proportion to the size of the head; in others, as in the oak and other ramose-headed trees, the length of naked trunk bears a much less proportion to the head. Shrubs are distinguished from trees, not only pictorially, but also botanically, by having no distinct trunk, or naked stem, but, whether large or small, forming one entire bush.

The trunks of trees may farther be considered with reference to the manner in which they rise out of the soil, and to the manner in which the head of the tree is supported by them. Trees which grow in thick woods, where the annual crop of leaves falls down, and rots into mould, have their trunks apparently without bases; but trees which stand in open situations, where the falling leaves are blown away, always rise out of the ground with a conspicuous base, formed by the junction of the trunk with the roots. No circumstance adds more to the effect of a tree, as a stately and durable object in a landscape, than the appearance of its trunk, rising from a secure and widely spreading base; and this appearance is one which may be imitated by art, both in drawing landscapes, and in landscape-gardening, and whether the trees to be introduced are young or old.

The perpendicularity or inclination of the trunks of trees are circumstances well deserving the study of the artist. Wherever trees have grown up fortuitously in groups or masses, the trunks of many of them will be found more or less inclined to the horizon; and their heads will often appear ill balanced when taken singly, though in combinations such trees make the most varied groups. Trees which have been planted singly, and exposed alike on every side, grow up with erect trunks, and form the most stately and well-balanced heads. Such trees always have the appearance of having been planted by art; while the others seem to convey the idea of their having been subjected to the operation of natural causes. Trees of the first kind may be called gardenesque trees, and of the latter, picturesque trees. Trees which grow out of rocks, or on precipices, or on the banks of water, almost always have their trunks inclined to the horizon; as trees on level surfaces, other circumstances being the same, have their trunks at right angles to the horizon.

Though shrubs are without trunks, yet the same general remarks will apply to them. A detached shrub, on a level surface, is clothed to the ground on every side; a shrub which has grown up among other shrubs or trees, or which stands on a slope or hangs over water, will be inclined to one side. Shrubs, however, admit of much less variety in point of attitude than trees.

The branches of trees differ in many particulars. The frondose branches of the pine and the fir tribe never, except under accidental circumstances, attain any great size; on the other hand, the ramose branches of the oak, the chestnut, &c., frequently attain a size which rivals that of the trunk. The branches of some kinds of trees proceed regularly from the stem, in some definite and obvious order of succession; others proceed from the stem apparently in an irregular manner. Some extend a great length horizontally, or at right angles to the stem; and others a great length acutely, or obliquely to it. The heads of some trees, as the cedar of Lebanon, in a detached situation, seem to consist entirely of spreading branches; of others, such as the pinaster, of a few branches at the upper extremity of the trunk. The ramifications of the branches are as various as their mode of insertion in the trunk: some are quite regular, as in the fir tribe; and others are exceedingly various and intricate, as in the oak. The branches of some trees have few branchlets, as in most of the poplars; others have many branchlets, as in the oak, the beech, the birch, &c. The same observations will apply to shrubs, but not in the same degree. In the case of shrubs, numerous stems arise from the root; and these stems, in many cases, produce only branchlets and spray, and, in others, only leaves. In some shrubs, as in the common laurel, the branches trail on the ground; in others, as in the berberry and the lilac, they are numerous and erect. Certain shrubs have stems which twine round, or are otherwise supported by, trees or other objects; such as the ivy, the clematis, &c.; and others rise up, and fall down, as in the case of the common bramble. Some shrubs are, in their details, like a collection of miniature trees; as, for example, the butcher's broom. In a botanical point of view, the variety which trees and shrubs present, with respect to their trunks and branches, is almost endless: but we have, at present, only to consider them with a view to pictorial effect.

The mode of growth in trees and shrubs varies according to the kinds; and is modified only in a slight degree by situation, soil, and climate. The main stems of almost all trees have a tendency to grow upright; but the branches proceed from these stems in different directions in different trees. The growths, that is, the branchlets and spray produced by the branches, extend themselves horizontally in some cases, as in the oak; upwards in others, as in the beech; and in some downwards, as in the weeping willow and the weeping birch. In some they are rigidly upright and compact, as in the Lombardy poplar; and in others they are upright and sparse (that is, thin), as in the gymnocladus. In young trees and shrubs the mode of growth is more decidedly exhibited than in old trees, because the growth is more rapid; and in detached trees it is more conspicuous than in such as are crowded, because the nature of the tree, in such situations, is more perfectly developed.

In shrubs, the mode of growth is often the principal circumstance by which, in a pictorial point of view, they can be characterised; because they have not sufficient magnitude to admit of great variety of form, or of outline: they are without trunks to admit of variety of attitude; and they are without large branches to admit of marked character. The artist, therefore, in order to render them interesting, must have recourse to their mode of growth, and to their foliage; and for these reasons, also, they ought almost always to be placed in the foreground, both of pictures and of garden landscapes.

The mode of tufting, that is, the mode in which the leaves combine into those masses which appear on the surface of the tree, varies with the kind of tree; and depends principally on the mode of growth, though, to a certain extent, it is influenced by the form of the leaves. The general form of tufts is roundish, or elliptical; the long axis of the ellipsis, or of the roundish figure, being universally in a horizontal direction. One tuft is separated from another by intervals of shade in the body of the tree, and by the background where the tufts compose the marginal outline. All tufts have their margins more or less indented, which depends on the forms and clusters of the leaves.

The leaves of trees and shrubs are almost as various as the species; but, pictorially, their forms are chiefly noticeable only so far as they combine into masses. A single leaf, in a tree viewed pictorially, is at such a distance from the eye as seldom to be seen in its entire form; but something of the general form of the leaves is recognisable in the margins of the tufts of foliage, and more especially in those which are nearest to the eye. The margins of these tufts may be said to be almost always more or less indented or serrated; the serratures differing in magnitude, in depth, in direction, and in being more or less blunt at their extremities.

The spray of trees, that is, the last made shoots on the extremities of the branchlets, is as various as the species of trees. In some it is horizontal, as in the silver fir; in others it is pendent, as in the larch, the weeping willow, and in some species of birch; in others it is rigid, as in the gymnocladus; and in others crooked, as in some of the oaks and thorns; in some it is thick, and unmarked by buds, as in the fig and the walnut; in others it is clothed with leaves throughout the year, as in all the evergreens.

The buds of trees and shrubs may be considered as scarcely perceptible in pictorial point of view; nevertheless, the spray of some trees are without visible buds; and in others, for example, the horsechestnut, the *Bétula nìgra*, and the *Quércus sessiliflòra*, the buds are very conspicuous. The blossom buds, both of trees and shrubs, are always much larger than the common buds; for which reason, in looking at a tree pictorially, during the spring season, it will be some assistance to the artist to know whether the tree is one which produces large or small flowers; and whether it is of a sufficient age to produce flowers at all. The knowledge of this, and of other particulars which may be considered botanical, will be of great assistance to an artist, in enabling him to correct his pictorial observations.

These are the chief circumstances, with regard to trees and shrubs, towards which attention ought to be directed, with a view to their pictorial effect, independently of the associations connected with them; and hence, in giving the history of individual species, it would be necessary to test each by all these different properties, with a view to determining its appropriate uses in landscape-gardening, and in ornamental planting.

SECT. II. *Of the Expression and Character of Trees and Shrubs considered pictorially.*

EVERY object in nature that forms a whole has some *expression*. If the nature of the object is unknown to the beholder, the expression which he assigns to it is analogous to that of some object with which he is already familiar; and he uses the same terms to describe its appearance as he would apply to such objects. For example, a tall, erect, regularly clothed tree will be described by the epithets stately, noble, or handsome; another kind of tree, with light airy foliage and a wavy stem, will be called graceful; and so on.

Character is some circumstance added to expression, which renders it more remarkable; and the circumstance which has this effect will generally be found to be the accidental exaggeration of some quality belonging to the natural expression of the object. For example, in the case of handsome regularly clothed trees, supposing a number of them standing together, character would be added to one of them by the extraordinary prolongation and magnitude of one or more of its branches; or by some of its branches having been taken away, so as to expose a portion of the trunk conspicuously, while the remainder continued clothed. Character would also be added to one tree, among a number of the same kind all previously alike, if a portion of this tree were scathed by lightning; or if some circumstance were to occur which threw the trunk over to one side. In either of the latter cases, what is called character would be conveyed by the object displaying, conspicuously, something which did not naturally belong to its species; while, in the former case, character was given by the exaggeration of some quality which was natural to the species.

The expression of trees may be said to be of two kinds: that which proceeds from their organic influence on the eye as forms, without reference to their nature, and altogether apart from moral associations; and that in which moral associations are the principal cause of the expression.

Supposing a person to see a tree or shrub for the first time, and to be totally ignorant of its nature; he could only look upon it in the light of a form; and, in this case, its expression, to him, would depend upon its resemblance to forms which he previously knew, whether geometrical figures, or the figures of other objects. Thus it is, that the first effort which the mind makes to discover beauty in natural forms is, to rocognise in them some of the forms of art; and hence, in the infant state of this taste in individuals, the first trees that would be admired would be those the heads of which bore the nearest resemblance to a globe, a cone, or some readily recognisable figure. The next step would be the recognition of some artificial figure, in the trees or shrubs of more regular outlines. To this would succeed the recognition of several figures contained within one general figure; and, lastly, the recognition, among these several figures, of regularity in their arrangement, or of symmetry in their disposition; of variety; of intricacy; and, lastly, of harmony and of character. In this way it will be seen, that a tree or a shrub is capable of exciting many ideas of beauty, considered simply as a form, and altogether apart from considerations of usefulness, of botanical interest, or of moral associations.

A tree, to be regular, or, in other words, to have the expression of *regu-*

larity, must exhibit the same number of tufts of the same size, and at the same distance from each other, on both sides of the trunk, or centre line. Such a tree, as a whole, we may suppose to be a regular globular figure; and it is a property of regularity, that one portion of any figure which is regular, being separated from the rest, will still be regular. If the globular head of the regular tree, therefore, were cut exactly in two, either vertically or horizontally, the separated portions would each be regular figures, that is, semi-globes.

In a *symmetrical* tree, on the other hand, there may be the greatest irregularity in the form and number of the parts, provided, only, that the same quantity of these be distributed on each side of the central vertical line, or trunk, of the tree. In the lower part of the tree, the branches or tuftings may protrude chiefly on the right hand and be large; and, on the upper part of the tree, they may protrude chiefly on the left hand, and be small; or they may be of mixed sizes in both places. Now, it is the characteristic property of a symmetrical figure, that, when it is cut in two, the parts separated, taken singly, are neither regular nor symmetrical; and, consequently, that they will not produce a whole in any way, unless they are reunited as they were before. By imagining such a tree as we have described, separated into two portions by a central vertical line, it will readily occur to the mind, that neither of these portions was either regular, or could in any way form a whole. Whoever wishes to enter on the study of the expression of regularity, symmetry, intricacy, and harmony, in detail, may refer to articles on the subject in the first volume of the *Architectural Magazine.*

The lowest degree of *organic beauty*, in a tree, we may suppose to be the form of a small-sized tree with a lumpish head, like the *Pýrus A'ria*; constituting one uniform mass, light on one side, and shaded on the other. A higher degree of beauty will be, where the general form of the mass is that of a cone, or where it is egg-shaped; because these forms contain an additional element of beauty to that constituting a globe, viz. that of elongation. A still higher degree of beauty will be produced, where all the branches of the tree, in the case either of a globe or cone, are distinctly marked and regularly placed on each side of the trunk, as in the case of a fir; and one still higher, where the branches and tufts project irregularly, but are still so balanced, on each side of the centre, as to form, on the whole, a symmetrical figure. Such a figure, where the tufts are numerous, varies in point of size and disposition; and, where the symmetry is perfect, will exhibit the greatest organic beauty of which trees are susceptible.

The association of ideas connected with trees has given rise to what is called their *moral and historical expression.* A tree which is young and growing freely, is said to be in good health, and thriving; and one that is not growing freely, is said to be sickly. A tree with a thick trunk and spreading branches is said to be strong and vigorous; one with a tall and slender trunk, to be light and elegant; one with a bending, or serpentine, wavy-like stem, as we have before observed, to be graceful; a tree with upright growths, to be rigid; and one in which the branches and spray droop, to be mournful, or weeping. In like manner, there are particular associations connected with trees which bear fruit; with those which grow in particular soils or situations, as mountains, marshes, &c.; and with those which are applied to particular purposes, as the oak for ship-building; the pine and fir for house-carpentry; the willow for basket-making; the thorn for hedges; and so on. The historical and geographical associations connected with trees are numerous, and of great interest: for example, the platanus reminds us of the respect paid to this tree in Persia; the sweet bay, of its shoots being used by the Romans to crown their warriors; the vine and the olive, of their unknown antiquity, and the highly prized liquors made from their fruits: and the cedar of Lebanon, of the esteem in which its wood was held in the days of Solomon. A knowledge of all the different associations which belong to each particular kind of tree, as it must add greatly to the enjoyment derivable from them, ought always to form a part of their individual history.

One of the most common and generally understood expressions of trees is, that which is called their *picturesque beauty*. Much has been written, by Gilpin, Uvedale Price, and others, in order to define the meaning of the word picturesque; and the expression of this beauty has been divided into two kinds: that of the beautiful, or smooth picturesque, suitable for cultivated scenery, and also for painting; and that of the rough picturesque, suitable for wild and forest scenery, and eminently so for graphic representation, whether by the pencil, or the palette. Among trees, whether in a wild or cultivated state, are found both these expressions; and, as an example of the first, we may give young specimens of the willow and the lime, and young trees generally; and of the second, the oak, the cedar, the thorn, and old trees generally. For a tree to be picturesque, it is not necessary that it should stand singly, or be at all symmetrical in point of form, or the general balance of its head; on the contrary, a mutilated tree, or one the trunk of which, from some accidental cause, has grown to one side, may be as picturesque as a tree which grows erect, and is comparatively perfect in all its parts; provided only that it is not a peculiar tree, such as that shown in *fig.* 1. p. 195. The only thing which is essential to picturesque beauty in a tree, is, that it should be capable of readily grouping with another tree, or with any building, object, or animal, so that the combination may form a satisfactory whole. It is evident that this remark applies alike to trees of the rough picturesque, and of the smooth picturesque: since young trees, which belong to the latter kind of beauty, will group together, or with other objects, just as readily as old trees which belong to the former kind of this expression.

The expression of *gardenesque beauty*, in individual trees, differs from the picturesque, in being (whether in the rough or the polished variety of the expression), at all times, regular, or symmetrical. The gardenesque is found exclusively in single trees, which have been planted in favourable situations; not pressed on, during their growth, by any other objects; and allowed to throw out their branches equally on every side, uninjured by cattle or other animals; and, if touched by the hand of the gardener, only to be improved in their regularity and symmetry. A truly gardenesque tree, when fully grown, has always some of its branches depending on the ground, in order to mark it as a tree of the garden or lawn; and not one of the park, where its lower branches would be separated from the ground by that horizontal line formed by the browsing of cattle; or one of the forest, where, from being pressed on by other trees, or, when young, growing up under the shade of an old tree, its form would necessarily belong to some division of the picturesque, or be peculiar; and peculiarity, in trees, as in other objects, as Sir Joshua Reynolds has shown, is deformity rather than beauty.

Architectural and sculpturesque trees are now no longer in repute: but we see no reason why trees should not be cut into the forms of colonnades, arcades, triumphal arches, and the figures of men and animals, as shrubs are cut into the form of those green walls which, under the name of hedges, separate our fields; and exotic plants are dwarfed, by being grown in pots or boxes; and fruit trees flattened by being spread out against walls. We do not say that arcades of trees, tonsile bowers, and sculptured evergreens, such as were formerly common in French gardens, rank high in the scale of verdant beauty; we merely assert that they are productive of distinct kinds of beauty; and that it is by no means desirable to be exclusive, and limit our notions of what is beauty to that which is highest in the scale, or to those kinds only that happen to be fashionable in our time.

Viewing trees with reference to their beauty as organic forms, and to the interest which they are capable of exciting by calling forth associated ideas, the tree which is considered the most beautiful by man, in any country, will vary according to the knowledge of every individual, and the country in which he lives. The trees which would most please man in a savage state would be those which had afforded him food or shelter: in a highly refined state, they would be those which afforded him the greatest amount of intellectual enjoyment, including their beauty as organic forms, their beauty as constituting a particular species of a class of organised beings, and their beauty as giving rise to pleasing or interesting associations. Perhaps the most interesting association connected with trees is that of their being employed in ship-building; because, without ships, mankind must have remained in isolated portions, and could never have been highly civilised. It is probable, therefore, that, in every country where ships are built, and where the trees employed are high in the scale of organic beauty, the most intellectual people of that country will consider such trees as the most beautiful. In Europe and America, the oak is the tree chiefly used in ship-building; and it is, at the same time, unquestionably fuller of variety and beauty of organic form, and of colour, and light and shade, than any other tree of temperate climates; the oak, therefore, to the most refined of the inhabitants of these countries, may be considered as the most beautiful of trees.

There are, also, associations of a local nature connected with various species of trees, which, when known, add to the pleasure of the beholder of the particular species: for example, the antiquity of the celebrated chestnut at Tortworth, or of that on Mount Etna, or the celebrity of the platanus at Buyukderé on the banks of the Bosphorus; or of the elm under which the founder of the state of Pennsylvania signed the first treaty with the Indians; or of the sycamore of Trons, under which the deputies of the Swiss met in 1424, to swear to free themselves from the yoke of their lords; lends an interest to every individual of these species. Mount Lebanon is known to every one as the native place of the cedar; and Wilton is known to many as one of the few places in England where that tree was first raised from seeds brought from that celebrated mountain by Dr. Pococke. An individual, a general observer, but not a botanist, who had never read the history of the cedar, would feel no more interest in a young plant of that species, even if springing from one of these trees, than in a spruce fir. A knowledge of the moral and historical associations connected with trees adds, generally, to the interest of those which are still young. In general, it is thought that such trees can have but a very limited share of beauty; and that they are chiefly worthy of admiration when they acquire such a size as to invite the painter to delineate them. This opinion can only have arisen from the general ignorance, and consequent want of interest, which prevail respecting trees as organised beings; from ignorance of their properties in an economical and in a gardening point of view; and from ignorance of the various associations which are connected with them. The source of interest in objects generally, consists in their positive beauty and utility; and in their susceptibility of variation, or of changes, in their expression of this beauty and utility. Now, if we compare young trees with old ones in these respects, we think it will not be denied that young trees are objects of much greater interest than old ones. In a picturesque point of view, we allow that the old tree has an advantage; it has also the advantage in point of shelter and shade; and, if it were to be cut down, it would produce more timber. But will an old tree prove a source of as much interest to the possessor of it, by its variations, in consequence of its yearly increase in size, as a young tree, provided that possessor has a historical and gardening knowledge of trees? We think not; and we would only ask any one who is of a different opinion, whether, if he were to be allowed to have only one tree in his garden, he would prefer a tree of ten years' growth, or a tree that was already full grown? With the latter tree the mind is carried back to times which, though interesting in some respects, it is desirable should never recur; with the former, it is carried forward along with all the improvements which are now contemplated, or in progress, in civilised society throughout the world. For our own part, independently of all moral, historical, and economical considerations, so great is the botanical and horticultural interest connected in our minds with young trees, and so delightful to us is the idea of preparing the soil in such a manner as to cause them to grow with extraordinary rapidity, that, if any one were to present us with a timbered estate, the first thing we should do would be, to cut down all the old trees, and to plant young ones.

In treating of trees individually, in the *Arboretum Britannicum*, it will form an important part of their description, to indicate the kind of expression produced by their forms, their attitudes, and their other pictorial qualities; and of their history, to record all those facts respecting each species, which may lead to interesting associations, whenever it occurs, whether it be in a young or an old state.

SECT. III. *Of the Mode of drawing Trees from Nature, in such a Manner as to give the general pictorial Expression of the Species of Tree delineated.*

IN drawing trees from nature, with a view to their introduction into landscape composition, the selection is very different from that made when the intention is to show trees as single objects. Where trees are to be introduced into landscape composition along with buildings, animals, or other trees, the symmetry or beauty of the form of the tree, considered by itself, is a matter of comparatively little importance.

A tree which is mutilated, the branches of which are ill balanced, or imperfectly clothed with tufts of foliage, will group better with other trees or objects, than a tree which is complete in itself. Such trees are perfectly well suited to the landscape-painter; but, except in the case of transplanting very large trees in order to produce immediate effect, they are of no use to the landscape-gardener, the ornamental planter, or the planter with a view to profit or use. To represent a tree mutilated or in any way imperfect, or to represent a group or whole composed of such trees, would be to exhibit what no art of the gardener could produce; and, therefore, what to him is useless, however valuable it might be in a picturesque point of view. Our object, in giving portraits of trees, has reference almost entirely to the gardenesque, to the ornamental, and to the useful. The aim of our portraits, therefore, is natural beauty and expression, with reference to the kind of tree drawn; and not beauty and character with reference to any description of graphic art. It is, in short, the beauty of truth, not local or peculiar truth, or truth with reference to any mode of depicting it; that is, not a portrait of a tree with the peculiarities which it may happen to have at a particular time and place, from peculiar circumstances; or a portrait taken to show the beauties of any particular style of sketching, drawing, or painting. It is not the portrait of a tree which has been overtopped by another tree, been improperly pruned, a part of it scorched by fire, or a part of the leaves destroyed by insects; or a portrait taken to show the picturesque effect of broken lights and shadows, breadth of masses, deep tone of colours, the sharpness of lines printed from copper or steel, or the softness of touches printed from zinc or stone. No: to draw a tree with any of these sorts of peculiarities would be in the same taste as it would be to give, as a specimen of the human being, a portrait of a man mutilated or deformed by accident or disease, or in a grotesque attitude or dress; or, as a specimen of the human face, a portrait of one disfigured with warts or pimples. This would be to portray not merely the individual instead of the species, but the individual under circumstances which had nothing to do with his character or expression, whether moral or graphic, as an individual.

It being agreed, then, that the object in drawing trees for the *Arboretum Britannicum* is to give a faithful portrait of the species, neglecting such circumstances as may be peculiar to the individual, the next point is to determine the season of the year at which the portrait is to be taken. With a view to this object, trees may be divided into three kinds: those the greatest beauty of which is exhibited when they are in flower or in fruit; those whose greatest beauty is when they are leafing in spring, or just about to lose their leaves in autumn: and evergreens, or those which are clothed with foliage throughout the year. The last two should be drawn in autumn; and those which are most beautiful when they are in flower or in fruit, at the seasons when the flowers or the fruit are in their greatest perfection. For example, the horsechestnut ought to be drawn in June, the laburnum about the same season, and the common apple-tree, the Siberian crab, the quince, and one or two others, in autumn. Some species of the genus *C*ratæ'gus are highly beautiful, both when in flower, in May or June, and when in fruit, from September to December; and these may be drawn at either season. Evergreens may be drawn during autumn and the whole of winter, till they begin to make their shoots in May; from that period they are unsightly for several weeks, while they are losing their old leaves and acquiring new ones; and they are uncharacteristic of the species till the new leaves and shoots have acquired that rigidity which is not produced till after complete maturity. This will be rendered particularly obvious by observing the common spruce fir, the Scotch pine, and the evergreen oak, during the growing season; say, about London, from the middle of May till the middle of June. A young spruce fir tree, drawn in May, would have a touch not unlike that of a horsechestnut; and a pine and an evergreen oak would appear to be trees of quite a different species from what they are. In general, there is a great sameness in the appearance of all trees during the leafing season, from the absence of that rigidity of foliage on the points of the shoots which gives rise to the particular touch of each species. Some deciduous trees are almost as readily known by their appearance in winter, after all the leaves have dropped, as they are in summer. Portraits of some of such trees have been taken during that season; and how very characteristic these winter portraits are, in the case of some species, is rendered obvious by the portraits of the Gledítsch*ia* inérmis, *U*'lmus americàna, and others, which will be found in their proper place.

Trees, like other objects, may be represented on paper by colours laid on with a brush or hair pencil, by ink laid on in the same manner, by lines drawn with a pen, or by lines drawn with a black-lead pencil. Whichever of these modes is employed, the object is to give the spectator a correct idea of the tree represented. The style of art in which this is done, whether by the black-lead pencil, the quill and common ink, the hair pencil and Indian ink, or by colours, is a matter of little consequence, provided the delineation be such as to raise up just ideas of the object imitated in the mind of the spectator. Different styles of art may, in this respect, be considered as equivalent to different languages, the object common to all being to convey ideas. As the most convenient and expeditious mode of drawing trees from nature is by the use of the lead pencil, we shall now proceed to give directions for its use. These directions are by no means so full as they might be; but to those who have leisure, and wish to see the subject of drawing trees by the use of the lead pencil treated in the best manner that has hitherto been done, we recommend Harding's *Elementary Art*, published in 1835, a work at once artistical and philosophic.

Previously to proceeding to the place where the tree to be drawn is situated, provide a leaf of drawing paper, or a book of such leaves, of a sufficient size to contain the pictures of the trees of the scale to which it is intended to draw them. In the case of the *Arboretum Britannicum*, we have drawn the young trees, or those which have been ten years planted within ten miles of London, to the scale of a quarter of an inch to a foot; and those which have been fifty years planted within the same distance of London, or are considered as full grown, to the scale of a quarter of an inch to 3 ft. In order to draw trees to these sizes, provide a dozen octavo leaves, and let them be sewed up together at one end, in the form of a small oblong book. Form a parallelogram on the first page, of such dimensions as to include the largest drawing which an octavo page will admit of, and next mark the scale on the boundary of this parallelogram, as is done in *fig.* 2. The parallelogram suited for an octavo page is 4 in. broad, and 7½ in. long; and the divisions are a fourth of an inch each. This parallelogram admits of a drawing of a tree 30 ft. high, with its branches extending over a space 16 ft. in diameter. These dimensions may be considered as the maximum for trees ten years planted, even under the most favourable circumstances; and therefore this size of page, and this scale, are what we have adopted for our *Arboretum Britannicum*. One page being marked as in *fig.* 2., all the other pages in the book, or any number of separate pages, may be marked in a similar manner by pricking through them from the different divisions of the scale.

For the purpose of drawing full-grown trees within the limits of the same sized parallelogram, we assume 90 ft. as the maximum height of the tree, and 48 ft. as the maximum diameter of the space covered by the branches; and, for this purpose, the same division of the inch into four parts will suffice, but with this difference, that each of these parts must now be considered as 3 ft., instead as of 1 ft. *Fig.* 2. is marked in this manner, in the inside of the parallelogram, for old trees; and it is marked in the manner before desbribed, on the outside of the parallelogram, for young trees. In practice, it is unnecessary to mark the figures, as the draughtsman will easily bear in recollection what each division represents. For trees exceeding 90 ft. in height, and 48 ft. in width, the margin may be encroached on, to the extent of half an inch on each side, and at top and bottom, which will afford space for a tree 102 ft. high, and with a head 60 ft. in diameter.

The draughtsman may now be considered as having got his directions, as far as respects paper and scale. Having prepared his pages, he will next procure two black-lead pencils, one hard, and the other hard and black (technically H and H B), together with a foot rule and a chair. The next thing to be done is, to choose the tree and the aspect from which it is to be drawn. In making a choice, the average form, height and character of the species ought to be taken, as far as practicable; and not a specimen remarkable either for its height, or for its singularity or peculiarity; and the point from which it is to be drawn ought, if possible, to be on the south, south-east, or south-west side of it. The rule is, that the sun ought always to be behind the draughtsman, and rather to the left than to the right of him. All other circumstances being the same, therefore, when a tree is to be drawn in the morning, the draughtsman ought to place himself on the south-east side of it, at mid-day on the south side, and in the afternoon on the south-west side. The next point is, the distance from the tree at which the spectator ought to place himself. If he sits, which is, in general, the best mode, though some artists prefer a standing posture when drawing, twice the height of the tree will be a very good distance; but if he stands, and the tree has a very short trunk, say one under 6 ft. in height, it will be advisable for the artist to add to his distance from the tree once, twice, or thrice his own height; otherwise the height of his eye above the lowest branches of the tree might cause the branches to conceal more of the trunk than would be desirable. It may be useful to add, that the principle on which the distance is chosen is that of being able to see the tree as a whole, or as an entire mass of light and shade easily comprehended by the eye fixed in one position, as opposed to that of seeing it in detail, and by changing the position of the eye. Experience has shown that the eye cannot comprehend more with ease than the fourth part of a circle, whether we take this circle as a vertical or as a horizontal plane, or as a solid globe, and imagine the eye in its centre. The principle which directs the position of the sun to be behind the spectator rather than in front of him, and at his left hand rather than at his right, is, that a portion of the tree may be in light, and another portion in shade, in order to show its general form and rotundity, and that the portion in shade may always be, for reasons to be hereafter given, on the right hand. In many cases, it may be necessary to draw the tree from the north side, and, in others, to draw it when the sun does not shine: in both

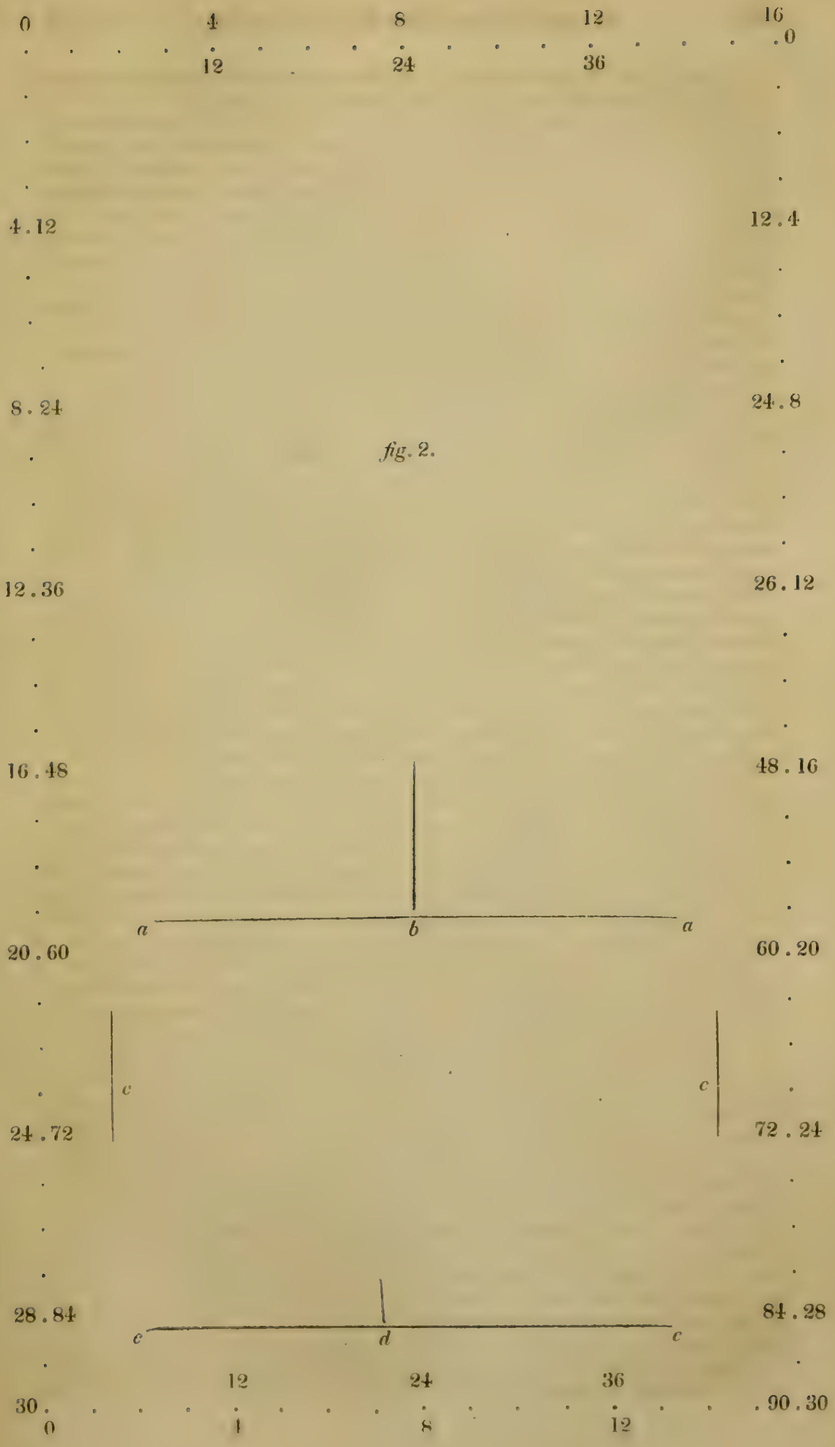

fig. 2.

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8
12
16
12
24
36
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8.24
24.8
12.36
26.12
16.48
48.16
a
b
a
20.60
60.20
c
c
24.72
72.24
28.84
84.28
e
d
c
12
24
36
30.
.90.30
0
4
8
12

these cases, the artist must supply the shade, from his knowledge of the manner in which it is supplied by the sun when it shines.

The artist having chosen his tree, and fixed his chair at the proper distance, the next step is, to measure or estimate its height. In the case of young trees, this is easily done by a 10-ft. rod, which, added to the height of a man and the length of his arm stretched above his head, will give 18 ft.; which will cover the height of most trees of ten years' growth. In the case of old trees, the height may be ascertained by a common quadrant, by a graduated quadrant, or, which in practice, and more especially when trees are crowded together, will be found the best of all modes, by pushing up the side of the trunk a series of rods connected one with the other by small tin tubes. This, and various other modes, will be found described in *Gard. Mag.*, vol. xi. p. 548.; and the subject will be again adverted to when treating of useful plantations, and felling timber, in Part IV. of this Encyclopædia.

The height of the tree to be drawn being measured, and supposing it to be 19 ft. 7 in., then nineteen divisions and a half of the scale are to be counted down from the top of the parallelogram, and a slight line drawn across, as at *a a*, in *fig.* 2. An estimate is next to be made of the diameter of the space covered by the branches, and also of the extent of the branches on each side of the tree. If the branches extend nearly to an equal distance on each side of the trunk, then all that is necessary is, to make a mark in the centre of the horizontal line *a a*, at *b*, in order to indicate the centre of the trunk. If, on the other hand, the branches extend much more on one side than on the other, then the first step is, to set off the total diameter, so as to reach within equal distances of each side of the page, as at *c c*, in *fig.* 2.; and supposing the trunk to be one eighth nearer on one side than the other, then the place for its centre may be indicated at *d* on the base line *e e*.

The next step is one of some importance. The artist should go up close to the tree, examine its leaves, and make sketches of an individual leaf, and of a cluster of leaves, both to a larger scale than that to which the tree is to be drawn, and then to the same scale to which the tree is to be drawn. These sketches are merely to be considered as studies made with a view of acquiring what artists call the *touch*, or ultimate character of form, with which the tree is to be clothed. As all the masses of light and shade, and all the various forms which a tree clothed with its leaves presents in nature, result from the various disposition of one form of leaf; so, in a picture, all the imitations of these are formed by the repetition of one character of touch. Sometimes the leaves on the tree, and the touches in the picture, are so crowded as almost to obliterate each other; at other times in both they are more distinct, and the form of the leaf, and the character of the touch, may be more clearly recognised. In densely clothed trees, the form of the leaf, and the character of the touch, are most discernible at the extremities of the branches; in thinly clothed trees they are discernible throughout.

The young artist, however, must not suppose, from all this, that to represent a tree it is only necessary to know the form of its leaf and of its touch; neither must he suppose that, in making out the details of the tufting or subordinate masses of a tree, he is merely to repeat leaf after leaf: on the contrary, having a knowledge of the forms of the leaves when examined singly, and of their clustering as exhibited on the points of the branches in the general outline of the tree when examined singly, and also of the tufting, or subordinate masses, of the tree when examined singly, he must copy from nature, almost without reference to his knowledge of these details; lest, instead of making a picture of the tree as it is in nature, he should portray only his own ideas of how a tree ought to be drawn. We repeat, that he cannot too closely copy nature, and this without reference to any rules; calling to his assistance his technical knowledge of the leaves, of the touch, and of the character of tufting, only where he feels the want of it, to assist him where the appearance of nature may be of doubtful expression. In this way a man writes on any subject, without continually thinking of grammar or syntax; but when he comes to read over what he has written, and finds some part of it obscure, or of doubtful construction, he is obliged to have recourse to his grammatical knowledge.

One of the many difficulties we have had to contend with, in getting the drawings and engravings of trees prepared for this work, is, the tendency, both of draughtsmen and engravers, to show here and there in their portraits, and sometimes, indeed, throughout the whole portraits, the distinct shapes of the individual leaves. This is just as bad as it would be, in making a drawing of a house, to give the distinct shapes of the bricks. It is true, that the surface of a tree is composed of leaves, as a house is composed of bricks; but our knowledge of these facts is not the result of our looking at the tree or house at a distance as a whole, or as a mere mass of light, shade, and colour, but of knowledge of another kind, quite otherwise acquired. Now, if the artist would only bear constantly in mind, that he is not required to convey, in his picture of the object represented, more knowledge than what a person who knew nothing of its nature might acquire by looking at it from a distance, he could not fail to succeed. The very expression, "Art," implies that the ordinary manner of conveying ideas is not to be adopted; and to show that a tree is composed of leaves, or a house built of bricks, by giving definite figures of the one or the other, is taking a license which robs art of all its charms.

It may be remarked here, that the touch of young trees is in no case so powerfully marked and characteristic in nature as that of old trees, for reasons familiar to every gardener, and which it may be well to notice here for the sake of artists. We have already said that the touch is formed by the clustering of the leaves at the extremities of the shoots. Now, as the terminating shoots of all young trees are chiefly or entirely of one year's growth, they, of course, are long, and terminate in a very few leaves, placed alternately or otherwise, round the shoot or axis, and at some distance, often an inch or more, from each other. Such leaves can never form those striking clusters which are so conspicuous in most old trees; particularly in the oak, the starry touch of which, and especially that of the *Quércus pedunculàta*, which is very different from that of *Quércus sessiliflòra*, is well known to every artist. The terminating shoots of old trees are generally shoots which grow only an inch or two, or, perhaps, not so much, every year; and, consequently, according to the manner in which trees grow, what is only a single leaf in the young tree of ten years' growth, is, in the spray, or terminal branches, of the old tree, a spur of several years' growth; that is, it is a spur or shoot of half an inch or more in length, protruding from the other shoot, and terminating in a cluster of leaves, perhaps half a dozen or a dozen, all radiating from the same very short axis. These radiating leaves form the touch. Any one may prove this by comparing a young oak tree with an old one. Notwithstanding the great difference between the touch of an old tree and a young tree of the same species, there is a certain distinctive character of touch even in young trees, and much more so in some species than in others; a horsechestnut, for instance, whether young or old, has a very distinct character of touch, from the large size and marked form of its leaves: so have all other trees having large leaves, and most of those having compound leaves, such as the robinias, ashes, elders, &c.

It may not be irrelevant to observe that there is as great a difference between the character of the ramification of an old tree and that of a young one, as there is between the character of their touch. There is a certain degree of sameness in the disposition of the branches of all young trees, from their tendency upwards, and perhaps still more from their being so fully clothed with leaves. Old trees, on the other hand, have generally a majority of their branches in horizontal or very oblique directions, and they are never so fully covered with leaves and spray as is the case with young trees. As a result of what we have stated, the general forms of young trees present a certain degree of sameness; while in old trees of distinct species there is generally a very distinctive character in the general form, in the trunk, the ramification, the tufting, and the touch. Any one may be convinced of this by observing any particular species, not of very common recurrence, in the arboretum of the Horticultural Society's garden, or in that of Messrs. Loddiges, and observing the same tree of fifty or sixty years of age, at Syon, Purser's Cross, Chiswick, Upton, or any of the places noted for old American trees in the neighbourhood of London. At the same time, while we state this, we must remark that there is still a very great difference in the general form, expression, and character, of even young trees which have been no more than ten years planted. In proof of this, we again refer to the two metropolitan arboretums, and to the engravings of entire young trees, as compared with the full-grown trees, which will be found in this work. We may particularly refer both to the living specimens and to the engravings of the smallest class of trees, such as the thorns, and other *R*osàceæ; which, even in ten years' growth, are remarkably distinct and characteristic, and supply the landscape-gardener with admirable resources for planting small places, as will hereafter appear.

To recur to the subject of the touch, we shall here quote from the *Magazine of Natural History*, vol. i. p. 244., what Mr. Strutt has said on the subjec of the touch of the oak, and illustrate it by two engravings from his sketches. "The foliage of the oak," he says, "is particularly suited to the pencil. In those portions which are brought nearer to the sight, the form of the individual leaves (*fig*. 3. *a*, to the scale of 1 in. to a foot) may here and there be expressed, as shown in the sketch, which also exhibits what is technically called the touch (*b*, to the scale of the fourth of an inch to a foot), necessary to express its character as it recedes from the eye." As a contrast to the touch of the oak, we shall give that of *P*ỳrus commùnis nivàlis, a variety of wild pear, taken at random from the sketch-book of an artist, M. Lejeune, in our employment. In *fig*. 4., *f* is a single leaf, drawn to a scale of an inch to a foot; *g*, a cluster of leaves to the same scale; *h*, the same cluster of leaves to the scale of a quarter of an inch to a foot; and *i*, the same cluster to a scale of 1 in. to 12 ft. The last is suited for full-grown trees, and the preceding one for young trees drawn to the larger scale.

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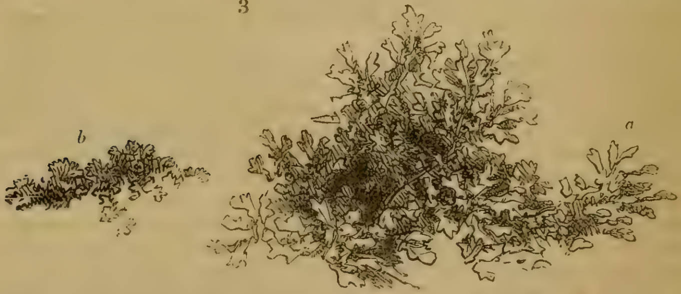

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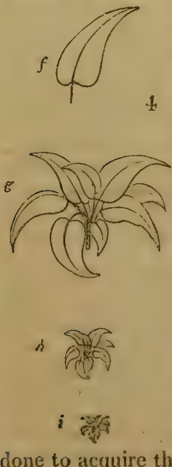

The artist having made himself acquainted with the touch of the tree, may retire to his seat and commence sketching; unless the tree should have conspicuous flowers or conspicuous fruit, as is the case with the horsechestnut if drawn when it is in flower, or with the laburnum if drawn when it is either in flower or in fruit. In examples of this kind, the artist must use the same means to acquire the touch of the flowers, or that of the fruit, as he has done to acquire the touch of the leaves.

In proceeding to draw the entire tree, the artist will first indicate the out-

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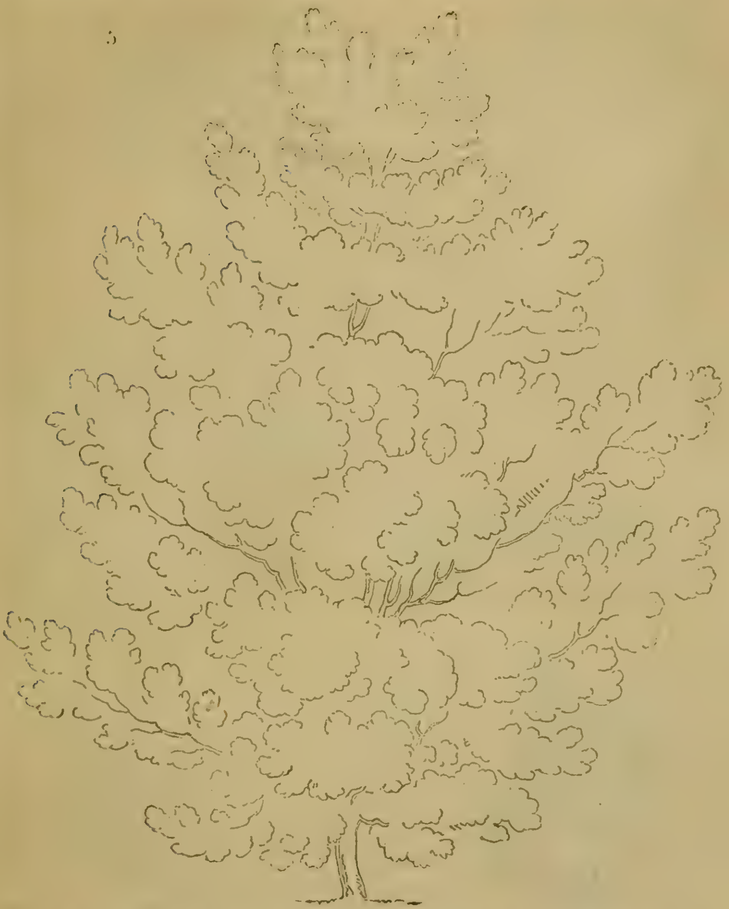

lines of the masses, in the slight but accurate manner shown in *fig.* 5., which is the commencement of a portrait of a young oak: he will then indicate the trunk, and its manner of rising from the ground; as whether perpendicular or inclined, and whether it tapers much or little. All the principal branches of the trees, visible through the leaves, should also be slightly indicated, as shown in the commencement of a portrait of *Cérasus Pàdus*, in *fig.* 6. This being done, the next step is to fill in the details of the leafing, the commencement of which, at the tops of the two trees, is indicated in *figs.* 7. and 8.; and, when this is effected for the entire trees, these two sketches only require the botanical details placed under them, to assume the appearance of the oak (*Quércus* pedunculàta) and the bird-cherry (*Cérasus Pàdus*) given in their proper places in the series of plates forming our second volume.

The only point which remains to be considered is, that of drawing the botanical specimens. These, in the plates which form our second volume, are all given to one and the same scale; viz. 2 in. to a foot. They ought to be drawn by the artist in a book by themselves, and not on the same page with the portrait of the tree, for various reasons. In the first place, because these specimens require to be drawn at three different seasons: viz. when they are in flower;

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when they are in fruit; and, in the case of deciduous trees, in winter, when they are in a naked state, to show the appearance of the wood at that season. In the second place, as these require to be drawn with scientific accuracy, they can only be properly done by taking the specimens home, inserting their ends in water, and drawing them with the greatest care before they begin to fade or shrivel. The specimen in flower will naturally, in most cases, be drawn first; and, because the flower is the first in the order of nature, it ought either to be put on the top of the page, or on the left-hand side of it, in order that it may come first in observing or reading. This is the reason why, in our volume of plates, we have, in the case of each young tree, always put the spring or flowering specimen on the left hand, and the autumn or fruiting specimen on the right hand. For a corresponding reason, we have shaded the entire trees on the right hand rather than the left, because the eye, being first attracted by the light parts of an object, proceeds afterwards to the shade. Where the flowers, when fully expanded, or the fruit or leaves, when fully grown, are less than an inch across, a flower, fruit, or leaf, of the natural size is given; and, to distinguish these full-sized specimens from such as are drawn to a scale of 2 in. to a foot, those of the full size are marked with a cross, thus +. Where a tree is of one sex, or has the sexes in different flowers on the same tree, the male flowers are marked by an *m*, and the female flowers by an *f*; and some trees, as in the case of the common ash (*F*ráxinus excélsior), the hermaphrodite flowers by an *h*. In one or two cases, it has been deemed useful to give magnified specimens of flowers or their parts; in which cases the abbreviation *mag.* is added to show this. Where the tree is deciduous, a specimen of the young wood, as it appears in winter, is given to the same scale of 2 in. to a foot. These requisites show that nearly a whole year is required, in order to draw properly the botanical specimens of any one tree.

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In the case of full-grown trees, we have in general considered it unnecessary to give more than a sufficient portion of foliage to show the touch of the tree, because along with the young tree of the same species will always be found the botanical specimens. These full-grown trees have, in every instance, been drawn in the autumn, when the leaves were ready to drop off, at which season alone they have their most forcible character. Some further observations on the subject of drawing trees will be found in the *Gardener's Magazine*, vol. xi. p. 395. to p. 412.; and whoever wishes to become master of the subject will consult the excellent work of Harding already referred to.

CHAP. II.

TREES AND SHRUBS CONSIDERED BOTANICALLY.

The purpose for which we propose to glance at the study of trees and shrubs, botanically, or as organised beings, is, to explain our reasons for the arrangement which we have adopted in placing them together; for distinguishing between species and varieties; and for the scientific descriptions which we have adopted. It must be evident to the reader, that, before any use can be made of the history of any tree or shrub, means must be devised for distinguishing what particular tree or shrub is meant. From the want of these means, or the ignorance in this branch of knowledge of travellers, many of their remarks on trees, and other organised objects, are of little use: because it is impossible for botanists to ascertain, from their descriptions or names, to what species of tree or shrub these names or descriptions apply. There can be no doubt that the difficulties in this respect are much greater when applied to the whole vegetable kingdom, than when they are limited to trees and shrubs; and more especially when they are limited to the trees and shrubs supposed to be actually growing in Britain. But even among these, which, probably, do not greatly exceed 1500, there is, at present, the greatest uncertainty in the application of names. In genera consisting of many species, there are scarcely two of the London nurseries where the same names are applied to the same things; and what in one nursery is considered as a variety is, in many cases, elevated in other nurseries to the rank of a species. Hence it becomes necessary, in a work like the present, not only to give our reasons for the classification which we have followed, but also for the specific distinctions which we have drawn, and for the kind of descriptions and figures which we have adopted. These reasons will form the subject of three separate sections.

Sect. I. *Of the Classification of Trees and Shrubs.*

Most authors who have hitherto produced works treating exclusively of trees and shrubs, from Evelyn and Du Hamel to the present time, have arranged them in the order of the alphabet. As we have, on various occasions (see *Encyc. of Gard.*, edit. 1835, pref.), given our objections to this mode of arrangement in any work having pretensions to be scientific, and also shown that all the advantages of an alphabetical arrangement, in the body of a work of any greater extent than a pocket dictionary, may be obtained by an alphabetical index, we shall not farther insist on the subject here; neither is it necessary for us to offer any arguments in favour of the arrangement which we have adopted, which is that of the natural system, now so generally preferred, by botanists and scientific cultivators, before all others. It may suffice to say, in favour of this system, that by grouping together objects which resemble one another in the greatest number of particulars, and which are also most alike in their qualities, every thing which is known respecting the properties, uses, or culture of any one of them, may be inferred, in a great measure, of every individual in the whole group. Hence, in the case of trees and shrubs, or of any description of natural object arranged in this way, however much the names of the objects may in future be changed, the descriptions of the objects will always be found associated together in the same group, or in groups nearly adjoining. Hence, also, when a plant is received, the name of which is unknown, its nature may be anticipated, by observing its resemblance to some group already known.

It is a common opinion among those who know little of scientific botany, that the natural system is only adapted to those who intend to become profound in the science; and that for practical men, and for amateurs, who merely aspire to a slight degree of knowledge, the Linnæan system is the best. There never was a greater mistake. To become master of the natural system requires, indeed, much study and perseverance; but the possession of such a degree of knowledge of it as shall be of far greater use to the cultivator, to the medical man, to the traveller, and to the amateur, than the most profound knowledge of the Linnæan system, may be easily acquired by any person of ordinary capacity. In fact, every child who is in the habit of seeing a great many trees, shrubs, and plants, though he does not know a single botanical name, may be said to understand, to a certain extent, the natural system; because, to preserve order in his ideas, and to assist his memory, he is obliged to throw all the conspicuous plants that come before him into groups palpably distinct. He would thus form the three grand classes of trees, shrubs, and herbaceous plants; and among the trees he would readily distinguish, and group together in his mind, the broad-leaved and the fir-leaved, the deciduous and the evergreen, the fruit-bearing and the barren. Among herbaceous plants, he would distinguish the grasses as an obviously distinct class; the bulbous flowers as another, and so on. These divisions, so far as they go, are made on the same principles as the natural system; that is, things are brought together, or called by one common name, on account of their general resemblance; that general resemblance comprehending the whole botanical science of the individuals drawing the distinction. All the difference, therefore, between the natural system of the most learned botanist, and that of the most ignorant country labourer, consists in the former having gone more profoundly into the subject; and having his knowledge founded on principles deduced from the facts accumulated by his predecessors, and not merely on personal experience. In short, all sciences not purely abstract are founded on some simple instinct of our nature, which is perceptible in the customs, not only of ignorant persons in civilised society, but of the rudest savages.

We shall not longer occupy our time in contrasting the advantages of a natural arrangement in describing trees and shrubs, either with an alphabetical one, or with the system of Linnæus, or any other artificial system.

Sect. II. *Of the Distinction between Species and Varieties in Trees and Shrubs.*

This is an intricate subject; and it is one which we are well aware we shall not be able to treat in a manner that will be satisfactory to all our readers. The reason of this is to be found in the difficulty of determining what are species, or natural and permanent forms; and what forms are accidental, or the result of culture, soil, situation, disease, &c., or of cross fecundation; and because the present disposition of botanists seems to be to multiply species rather than to diminish their number.

When we look into a modern catalogue of plants, we are astonished, and almost confounded, by the great number of specific names which are ranked under one generic name. If we endeavour, by inspecting the names more particularly, to discover any relationship between them, we are utterly at a loss. One name is, perhaps, an adjective denoting colour, or some other property belonging to the plant, another indicates the native country of the species; and a third shows that it has been named in commemoration of some place, or of some individual. If we look at the column, in such catalogues, which indicates the native country of the species, the difficulty is increased rather than lessened: perhaps a native of the tropics is placed next a plant from the frigid zone. In this, as in similar cases of collecting knowledge, the first step is to accumulate facts, and the second is to generalise on them. Hitherto it would appear, that, as far as regards species and varieties, the great object of botanists has been to increase their number, without much regard to grouping them according to their relationship. It is not for us even to try to remedy this evil in respect to all the species and varieties of plants; but we propose to attempt to do so, in as far as respects the hardy trees and shrubs of Britain. We shall notice, in succession, the subjects of species, races, varieties, and variations; and we shall then offer some remarks on mules, hybrids, and what are called botanical species.

A species is defined, by Dr. Lindley, to be "a union of individuals agreeing with each other in all essential characters of vegetation and fructification; capable of reproduction by seed, without change; breeding freely together, and producing perfect seed, from which a fertile progeny can be reared." (*Introd. to Bot.*, p. 365.) This, we believe, is the general definition of a species by botanists; but it evidently requires some modification; for, in the case of many cultivated annual plants, the variety or race is reproduced from seed; and, consequently, if reproduction from seed were considered as a certain test, red, white, woolly-eared, and smooth-chaffed wheat, would be so many distinct species; as would the different varieties of cabbage, turnip, common lupine, &c. In like manner, also, the different varieties of particular species of cultivated fruit trees, might be deemed species; for it is certain that seedlings from such varieties of fruit trees, when no cross fecundation has been effected, always bear a nearer resemblance to the variety which produced the seeds, than to any other variety, or to the original species. The truth we believe to be, that trees and shrubs are subjected to the same law, in regard to the reproduction of varieties from seed, as annual plants; though, from the varieties of the former seldomer falling under our observation, and requiring a longer time to come to maturity, we have not the same opportunity of becoming sufficiently impressed with the identities of their natures as to be able to generalise on them. On examining a number of individual trees or shrubs, raised from seed (say, for example, oaks in an oak wood, or hawthorns in a hedge which has not been cut), we shall not find two individuals exactly alike, either in foliage, in flower, in fruit, in mode of growth, or even in the earliness or lateness of budding, flowering, ripening the fruit, or dropping the leaves. We have no doubt, reasoning from the analogy of the wheat, that, if the acorns or haws of any marked variety in such a wood or hedge as that mentioned were sown, and the plants reared to maturity, they would be found (unless cross fecundation had been accidentally or artificially effected) more like the parent variety than any other in the wood or hedge, just as in the case of seedlings from varieties of wheat, cabbage, or fruit trees.

These may be called cultivated varieties, or, according to De Candolle, *races;* but there are others, which we shall call *accidental varieties* that we are not so certain can be continued by seed. For example, there are weeping varieties of certain trees, such as the common ash; and fastigiate varieties of others, such as the Exeter elm, the *C*ratæ'gus *O*xyacántha stricta, and the Lombardy poplar (*P.* fastigiàta), which we believe to be only an accidental variety of *P.* nìgra: these varieties, we think, would scarcely come true from seed in every, or even in many, cases; though we have no doubt they would in some. Variegated trees and shrubs, we should suppose, would not always come true from seed, any more than variegated annuals or bulbs; but we have no doubt that, as in the two latter cases, a certain proportion of the progeny would be variegated in trees and shrubs, as well as in herbaceous plants. The raising of seedlings from such accidental varieties then, will prove that they are not entitled to rank with cultivated varieties or races.

The difficulty of being able to determine what is only a variety, and what may be ranked as a species, is ably pointed out by Dr. Lindley, in the following passage: — " The manner in which individuals agree in their external characters is the only guide which can be followed in the greater part of plants. We do not often possess the means of ascertaining what the effect of sowing the seed or mixing the pollen of individuals would be; and, consequently, this test, which is the only sure one, is, in practice, seldom capable of being applied. The determination of what is a species, and what a variety, becomes, therefore, wholly dependent npon external characters, the power of duly appreciating which, as indicative of specific difference, is only to be obtained by experience, and is, in all cases, to a certain degree, arbitrary. It is probable that, in the beginning, species only were formed; and that they have, since the creation, sported into varieties, by which the limits of the species themselves have now become greatly confounded. For example, it may be supposed that a rose, or a few species of rose, were originally created. In the course of time these have produced endless varieties, some of which, depending for a long series of ages upon permanent peculiarities of soil or climate, have been in a manner fixed, acquiring a constitution and physiognomy of their own. Such supposed varieties have again intermixed with each other, producing other forms, and so the operation has proceeded. But, as it is impossible, at the present day, to determine which was the original, or originals, from which all the roses of our own time have proceeded, or even whether they were produced in the manner I have assumed; and, as the forms into which they divide are so peculiar as to render a classification of them indispensable to accuracy of language; it has become necessary to give names to certain of those forms which are called species." (*Ibid.* p. 366.)

The secret of the great number of names of species which at present form the bulk of names in our catalogues is to be found in what follows from the same author: — " Thus it seems that there are two sorts of species: the one, called natural species, determined by the definition given above; and the other, called botanical species, depending only upon the external characters of the plant. The former have been ascertained to a very limited extent: of the latter nearly the whole of systematic botany consists. In this sense a species may be defined to be ' an assemblage of individuals agreeing in all the essential characters of vegetation and fructification.' " (*Ibid.*, p. 366.)

The difficulty of determining what is a species, and what is a variety, as far as concerns plants of culture, may here be considered as diminished; but, since it is acknowledged by Dr. Lindley, that nearly the whole of systematic botany consists of what are called " botanical species, depending only upon the external characters of the plant," the idea of determining, with any thing like absolute certainty, what is a species, at least a botanical species, and what is a variety, seems almost hopeless. The " whole question," Dr. Lindley observes, " lies with the word essential. What is an essential character of a species? This will generally depend upon a proneness to vary, or to be constant in particular characters, so that one class of characters may be essential in one genus, another class in another genus; and these points can be only determined by experience. Thus, in the genus Dahlia, the form of the leaves is found to be subject to great variation; the same species producing, from seed, individuals, the forms of whose leaves vary in a very striking manner: the form of the leaves is, therefore, in Dahlia, not a specific character. In like manner, in Rosa, the number of prickles, the surface of the fruit, or the surface of the leaves, and their serratures, are found to be generally fluctuating characters, and cannot often be taken as essential to species. The determination of species is, therefore, in all respects, arbitrary, and must depend upon the discretion or experience of the botanist. It may, nevertheless, be remarked, that decided differences in the forms of leaves, in the figure of the stem, in the surface of the different parts, in the inflorescence, in the proportion of parts, or in the form of the sepals and petals, usually constitute good specific differences." (*Ibid.*, p. 366, 367.)

The subject of species and varieties has, in our opinion, been placed in the clearest light, by Professor De Candolle, in his *Théorie Elémentaire*, and in his *Physiologie Végétale*. In the latter work, this celebrated botanist recognises in plants — species, races, varieties, and variations.

Species. — Under the name of species, that is what we consider aboriginal species in contradistinction to the botanical species of botanists, Professor De Candolle unites all those individuals which bear a sufficient degree of resemblance to each other, to induce us to believe that they might have originated in one being, or one pair of beings. The degree of resemblance which authorises us to unite individuals under the denomination of a species varies much in different families; and it often happens that two individuals which really belong to the same species differ more between themselves in appearance, than others which are of distinct species: thus, the spaniel and the Danish dog are externally more different from each other than the dog and the wolf are; and many of the varieties of our fruit trees offer more apparent differences than are found between many species. (*Physiol. Végét.*, vol. ii. p. 689.)

If all the alleged species and varieties of any tree, shrub, or plant were collected together, and cultivated in the same garden, however numerous were the varieties, and however remote they might appear to be from the original species, it would be practicable, after a series of years, to decide with absolute certainty what were aboriginal or fixed features, and what features were variable. For example, in the case of the apple, notwithstanding the thousands of varieties in cultivation throughout the temperate regions of the world, and the immense difference between some of the varieties (for example, the Alexander or the Hawthornden and the original crab), and even the great difference between the crabs of different parts of Europe, yet in no case is there any danger of one of these varieties being mistaken for a pear. One general character of leaf, flower, and fruit is common to the whole of them, though it may not be easy to define in what this essential character consists, in such a manner as to render it observable to any one who had not seen a great number of varieties of apples and crabs. Again, in the case of the common hawthorn, though some of the varieties have deep red fruit, others pale red fruit, others yellow, and others black fruit; and though some varieties of hawthorn have drooping branches, and others have them rigidly erect and fastigiate; though some have the leaves finely cut, and others obtusely lobed or scarcely lobed at all; though some are polygynous, and some are monogynous; yet there never can be any difficulty, when all these varieties are before us, in determining that they belong to one and the same species. The same observation will apply to the numerous varieties of the cockspur thorn, which now figure in our catalogues as distinct species; and we think that it might be applied to many varieties of the genera *F*ráxinus, *U*'lmus, *S*àlix, *Q*uércus, *P*inus, and to various others. Could we bring before us, into one plantation, all those ashes which are natives of America, and watch them for a sufficient number of years, we have no doubt that we should not find it more difficult to assign them to one species, than we do the different varieties of the European ash to the *F*ráxinus excélsior. All the elms of Europe, we are inclined to be of opinion, may be reduced to only three species; and we much question if, on De Candolle's principle of determining what a species is, there would be more than a tithe of the names which are ranked as such under *S*àlix, *Q*uércus, &c.

Races. — A race in the vegetable, as in the animal, kingdom, De Candolle observes, "is such a modification of the species, whether produced by exterior causes, or by cross fecundation, as can be transmitted from one generation to another by seed." Thus, among all the cultivated vegetables and fruits, both of the garden and of the field, the greater number of sorts may be considered as races, because they may all be continued by seed; the culture given and other circumstances being the same. If the culture were neglected for a series of generations, there can be no doubt that the race would revert to the aboriginal species; because a tendency to this has been found to take place both in plants and animals.

Varieties. — A variety differs from a race, in not being susceptible of propagation by seed, at least with any thing like constancy and certainty. For example, the jargonelle pear may be continued by seed; but a jargonelle pear with variegated foliage could not be so propagated with certainty. We allow, however, that, if a great many seeds taken from the fruit of a jargonelle pear with variegated leaves were sown, some of the plants so raised would probably show variegation in their foliage. The same thing, we think, would take place in the case of sowing the seed of variegated hollies, or of fastigiate or pendulous-branched plants, but to what extent it is impossible to say. It certainly would not take place to such an extent as to confound varieties with races, or to render it desirable to propagate varieties in this way; and, consequently, varieties are always propagated by some modification of division, such as by cuttings, layers, grafting, &c.

Variations differ from varieties in not being transmittible by any mode of propagation. They are always produced by local circumstances operating on the individual; and the moment these circumstances are changed, the variation disappears. For example, plants grown in the dark will have their leaves white; other plants with hairy leaves, when grown in water, will have their leaves smooth; and the hydrangea, grown in a certain description of soil, will have its flowers blue: but, remove the plant with white leaves to the light, and place the plant grown in water in dry soil, and the hydrangea in common soil, and it will be found that the leaves of the first will become green, and those of the second hairy, and that the flowers of the hydrangea will resume their natural pinkish hue.

Mules and Hybrids. — Some confusion exists as to the use of these terms, when applied to plants. The term mule, we think, ought to be limited to such hybrids as are raised between different aboriginal species, and which it is believed are not susceptible of propagation by seed: such, for example, as the *P*ỳrus spùria, which seems to be a hybrid between *P*ỳrus *S*órbus or *A*'ria and *P*ỳrus Chamæméspilus. The term hybrid, on the other hand, we think, ought to be limited to the produce, by cross fecundation, of different races and varieties of the same species. Every one knows that this is one of the most important elements of culture, having given rise to the most valuable garden flowers, table fruits, culinary vegetables, and agricultural plants.

Botanical Species. — It will be seen, from the preceding remarks, that we follow De Candolle in denominating what Dr. Lindley and other British botanists distinguish as botanical species, races, or varieties.

It is not to be supposed, however, that we undervalue botanical species, or that we either deny the distinctness of many that exist, or the propriety of having different names for them, and keeping them distinct. On the contrary, to compare plants with men, we consider aboriginal species as mere savages, and botanical species, or, according to De Candolle's classification, races and varieties, as civilised beings. What, then, it may be asked, is our object in endeavouring to show that many of our botanical species are only varieties? We have two objects in view; and both, we think, are very important ones. In the first place, by confounding varieties or garden or botanical species with aboriginal ones, a beginner, ignorant of the extent to which this is done, cannot make a judicious selection; and while, in the case *F*ráxinus, for instance (of which there are, in reality, as we think, only three species known, exclusive of *O*'rnus), if he wished to select, perhaps, three sorts, he might, instead of selecting the three really distinct species, which would give him a complete idea of the genus, fix on three of the varieties of *F.* americàna or of *F.* excélsior, which would only give him an idea of one species. In the second place, we wish to prevent beginners, in the study or cultivation of trees, from puzzling themselves unnecessarily to make out the minute differences which distinguish what are called botanical species; believing, as we do, that it is impossible to make out many of these from the specific characters given of them in botanical works. The nicety of these distinctions has we know, deterred numbers from the study of practical botany; and has prevented others, who have had the courage to proceed, from ever hoping to attain any satisfactory result. It has also (and this we consider to be the most important part of the evil) prevented many persons from forming collections of trees and shrubs, by inducing them to believe that such collections could never be made anything like complete, without incurring an expense greatly beyond what is really necessary. Instead of this being the case, the number of hardy trees and shrubs is so small, when compared with that of hardy herbaceous plants, or stove or green-house plants, that there cannot be the slightest difficulty in becoming acquainted with all the species, provided these and the varieties are only seen together; and the cost of as complete a collection of species as can be procured in the London nurseries is such as to be within the reach of every planter of the grounds of a villa of a single acre in extent.

The mode by which we propose to attain these objects is very simple. We shall retain the botanical species and varieties in the catalogues, so far as we believe them to exist; but we shall, in every case, place before them the name of the aboriginal species to which they belong: for example, in the case of the genus *F*ráxinus, which, in our *Hortus Britannicus*, appears to consist of 41 species and 12 varieties, we shall rank 30 of the species under the head of *F.* americàna, two of them under the head of *F. l*entiscifòlia, and the remainder under the head of *F.* excélsior. It may be asked, whether it would not be better at once to make distinct genera of these three species? To which we answer, that it would not; because they are all so obviously of the same general appearance, as evidently to belong to the same family. There would be the same objection to separating the oak family into different genera; though we think it highly probable that there are not a dozen aboriginal species of oak in the world. Every division, or conglomeration, in botany, that can assist the mind to generalise, at the same time assists it in particularising; and it will be found much more easy, after throwing all the races or varieties of *F*ráxinus americàna into one group, to distinguish them from each other, than by leaving them as distinct species, and having the trouble of distinguishing them, not only from other races or varieties of *F.* americàna, but also from all the races or varieties of *F.* excélsior.

Such are the principles which we have adopted, to guide us in arranging species, races, and varieties, from a perfect conviction of their truth. If we had not had an opportunity of observing, for several years past, the collections of trees and shrubs in the neighbourhood of London, and of studying them at every season of the year, with a view to the production of this work, we should never have been able to arrive at these principles, or to adopt them from others, with any degree of satisfaction to our own minds. We are, however, perfectly satisfied that we are in the right path; and we feel convinced that all practical botanists who have had an opportunity of making similar observations, and who have made them, will approve of our arrangement.

SECT. III. *Of the Mode of describing Trees and Shrubs.*

IT is foreign to the object of this work, to enter any farther into botanical science than becomes necessary to elucidate the reasons which have induced us to depart, in any particular, from general practice. It will readily be conceived, from what has been stated in the preceding section, that we attach no great value to what are called the specific characters of botanical species; that is, of what we shall distinguish as races in some cases, and varieties in others. The reason is, that we do not think it is often practicable to discover a species or race by such characters alone. The specific character of an aboriginal species we consider in a different point of view: for, as we think all aboriginal species must be decidedly distinct, so we think it practicable to render this distinctness so obvious, in the few words which constitute a specific character, that the name of a plant may be discovered by it. To recur to the genera *F*ráxinus and *C*ratæ\`gus, we will ask any botanist, either practical or theoretical, whether, from the specific characters of the botanical species of *F.* americàna or of *C. O*xyacántha, he could discover the individuals to which those names are intended to apply, without having recourse to dried specimens or engravings? We ask the same question with reference to most of the alleged species of *S*àlix, *U*'lmus, *Q*uércus, *P*ìnus, and *R*ùbus. We admit that many of these botanical species, or varieties as we consider them, may be made out from lengthened descriptions; but we deny the practicability of doing this, in many cases, from short specific characters. That we may not be misunderstood, we refer more particularly to the genera *Q*uércus, *S*àlix, *U*'lmus, and *R*ùbus; and even to *T*'ilia.

But, though we question the utility of specific characters to botanical species as such, we are of opinion that they may be of some use when applied to these species, as being varieties of an aboriginal species, and indicating that they are such. For example, in the case of the specific character of *F*ráxinus pubéscens, caroliniàna, láncea, &c., as absolute species, and to be compared with different botanical species of the same aboriginal species, and also of *F.* excélsior, we think it would be extremely difficult, if not impossible, to apply them; but, if it were known that these botanical species were only varieties of *F.* americàna, the difficulties of distinguishing them would be greatly diminished. For this reason we shall, in many cases, adopt the specific characters of botanical species given by botanists, adding to them such descriptive particulars as our own observation has enabled us to supply.

We may here refer to two causes, which have not only contributed to the great imperfection of the specific characters of botanical species; but which have been the means of multiplying the number and descriptions of these species in books, to an extent which, we are persuaded, does not exist in nature. One of the practices to which we allude is, that of describing species from dried specimens only; and the other, that of mistaking varieties for species by collectors. We admit that the first of these practices is unavoidable in the infant state of botanical science; and that it must necessarily be continued, till botanists shall rise up in every country in such numbers, and of such acquirements, as to be able to describe the plants of every country from nature; or till all the species, or all the alleged species, of every genus of plants shall be assembled together in one spot, and what are really aboriginal species shall be determined, after observing them for a series of years. Happily, both these results are in progress of attainment: botanists are beginning to spring up in every civilised country, or to emigrate from old, and settle in newly discovered countries; and, in all the wealthiest governments of Europe, assemblages of plants are being made in botanic gardens. If the directors of these gardens were to cooperate, and each to undertake the collection and the study of one or more genera of hardy plants, we should, at no distant period, be able to say what are really species, and what are not. If botanic gardens were established in every country and climate of the world, and the whole of the directors of these gardens were to act in concert (which concert, being quite distinct from political associations, would not be objected to by any government), in each garden might be assembled all the alleged species or varieties of at least two or three genera, those being selected for which its climate, situation, soil, and extent were most suitable; and, after a few years, the aboriginal species, and the more prominent varieties, might be determined on. In the meantime, this process might be commenced in many of the botanic gardens already established in the temperate regions of the world; and we have already shown (p. 192.) how, in every country in these regions, the determination of species, and their nomenclature, might be effected, as far as respects hardy trees and shrubs.

When the natural system of botany comes to be more generally understood and cultivated, there will not, we may presume, be that desire, which now seems to exist among botanists, to increase the number of species. Formerly, and more especially among the disciples of Linnæus, the great business of the botanist was to collect, name, and describe plants. These were then the highest departments of the science; but, now, the anatomical, physiological, and chemical studies of plants occupy that station; and the naming and describing of species is considered as comparatively mechanical.

The other cause which has contributed to increase the number of supposed species is, the natural eagerness of botanical collectors, sent abroad in order to discover novelties, to find something new, in order to answer the end for which they were sent out. This is very natural: and where there is a strong desire for, and also an important interest concerned in, obtaining anything, either the thing sought for, or something like it, will be found. Hence the young and ardent collector will seize upon every variation produced by climate, soil, situation, age, or even accident, to add another specimen to his herbarium; which enables the botanist at home to add another name to the number of his species. This we believe to be much more frequently done from practical inexperience, than from any intention to deceive; so different is the appearance which plants present in a wild state and in a state of cultivation, and, often, in one country from what they do in another country; and so difficult is it to judge of an entire tree by a dried specimen, perhaps only a few inches in length. This state of things, in the comparative infancy of botanical science, is perhaps unavoidable; and it is, doubtless, erring on the safe side, to collect and bring home every thing that can be at all considered as distinct, leaving it to cultivators and botanists to determine afterwards whether it is really so. It is proper, however, to notice this state of things, to aid in accounting for the present state of confusion and uncertainty in the names and characters of trees and shrubs; and to show the little faith that is to be placed in botanical descriptions drawn up from dried specimens of any kind, and more especially from those procured by inexperienced collectors. If this may be considered as applicable to plants generally, it is more particularly so in the case of trees and shrubs; which, from the long period which they require to attain maturity, naturally assume very different appearances under different circumstances: and which, therefore, require to be studied, not only in the same locality, but in different localities, for a number of years, before any decided opinion can be pronounced respecting which are species and which are varieties.

It will not, we trust, be supposed, from these observations, that we intend to set ourselves up as a model for imitation, in determining species and describing them; on the contrary, we value the *Arboretum* part of this *Encyclopædia* much more, as containing only the names of such things as we know to be really distinct, and actually in existence in England, than for its pretensions in a purely botanical point of view.

CHAP. III.

TREES AND SHRUBS CONSIDERED WITH REFERENCE TO THEIR USES IN THE ECONOMY OF NATURE AND TO MAN.

The large proportion which the ligneous vegetation of the earth's surface bears to its herbage, and the immense extent of the forests in comparison with that of the meadows, pastures, or plains, which it contains, seem to indicate that trees and shrubs act an important part in the economy of our globe. In countries uninhabited by man, the influence of forests must be on the climate, on the soil, and on the number of wild animals and herbaceous vegetables. In civilised countries, to these influences must be added the relation in which trees and shrubs stand to man. It is not our intention to enter farther into these subjects here, than may be necessary to show to what circumstances, in the economical history of trees, we ought chiefly to direct our attention, in composing the history of each particular species. The subject may be divided into two sections.

Sect. I. *Trees and Shrubs considered with Reference to uncultivated Nature.*

It appears highly probable, that the greater part of the surface of our globe has been, at one time, covered with wood; because, among other reasons, coal is found in almost all countries; at all events, it is certain that this has been the case with the greater part of the temperate regions of the world at no very distant period. North America was, till lately, almost entirely covered with trees and shrubs, and presented few naked surfaces, except those of the alluvial deposits on the banks of its larger rivers; and what was so recently the state of America must, we may reasonably suppose, have once, at least, been that of every other part of the world.

The influence which a predominance of forest must have in a country uninhabited by man must have extended to the animals, the herbaceous vegetables, the soil, the waters, and the climate. To wild animals of every kind, especially to those of the more ferocious description, forests have, in all countries, furnished shelter, and, in a great measure, food: birds, insects, and reptiles are the more common inhabitants of forest scenery. Herbaceous plants are, for the most part, destroyed by dense forests; but some kinds, such as epiphytal lichens, mosses, and, in some cases, Orchídeæ, are encouraged by the thickness of the shade, and the moist heat which prevails among the trunks and branches of the trees. But the great influence of forest scenery in a wild state is on the soil; and, in this point of view, natural forests may be regarded as a provision of nature for preparing the earth's surface for the cultivation of corn, and of the other plants which constitute the food of man, and of domestic animals. It is unnecessary to show how the soil is furnished with that organised matter, on which alone perfect plants can live, by the decay of leaves, and, ultimately, by the decay of trunks and branches. The waters of a country, the rivers and lakes, are necessarily affected by the state of the woods of that country. These woods must, in all cases, act more or less as a sponge in retaining the water which falls on them; and water must thus be supplied more gradually to the rivers, in countries covered with wood, than in countries which are cleared, and regularly drained. The influence of forest scenery in increasing the moisture of the atmosphere, and in preventing a climate from being so hot in summer, and so cold in winter, as it would otherwise be, is well understood, and, in such a slight outline as the present, requires only to be mentioned.

The use of studying the influence of trees in an uncultivated country is, to afford useful hints with reference to the planting or thinning of them in countries which are civilised. That which takes effect on a grand scale, where forests cover many thousand acres, must operate more or less in the same manner where they extend only to hundreds, or even tens, of acres; and, consequently, this influence must be kept in view in the formation of plantations, both useful and ornamental. If the forests and plantations of Britain are no longer of such an extent as to afford a shelter for wolves and hyenas, they still harbour foxes, polecats, snakes, and other noxious animals, and several kinds of carnivorous birds, such as the hawk. The forests in France and Germany still contain wolves and wild boars; and, on most parts of the Continent, the forest is the place of refuge to which man flies for concealment after the commission of crime. (See Gautieri *Dello Influsso dei Boschi*, &c.) If forests in a wild state supply food to birds and insects, in a civilised country birds and insects may be expected to abound more or less wherever there are trees and shrubs to supply them with food and shelter.

The same may be said with reference to different species of reptiles. In Belgium and part of Holland, the caterpillars of some species of moths are so abundant in the woods at a particular season every year, that it is a part of the business of the government police to see that they are destroyed. Hence the advantage of knowing what trees and shrubs are obnoxious to particular insects, and what insects attack trees and shrubs generally. The total destruction of herbaceous plants in dense forests teaches us, that, where we wish the grass or other herbage under trees to thrive, we must plant the trees thinly; and the influence of the decay of leaves, branches, and trees, in adding to the soil, teaches us how barren soil may be improved by trees; and this natural effect has been imitated by trenching down entire plantations of Scotch pine, grown on extremely poor soils in some parts of Scotland. Undrained woods, and especially copse woods, are known to retain the water which falls on them much longer than open groves or plains; and, as increased exhalation and evaporation must be going on from such woods during the period of retention, and increased moisture must be thus produced in the atmosphere, the circumstance may demand consideration in planting extensive shrubberies near dwelling-houses; and, more especially, in planting such as are intended, by frequent digging, always to present a surface of naked loose soil. The influence of trees in modifying both the temperature and moisture of the atmosphere, in civilised countries, and in artificial scenery, is generally known; and this knowledge should not be lost sight of in the disposition of trees and shrubs about a house, more especially in low situations. There is great reason to believe that many country residences in England, naturally healthy, are rendered unhealthy by the superabundance of trees and shrubs, and by the quantity of dug ground close to the house. The insects which infest the rooms of a house are also very much increased by the proximity of wood.

From trees and shrubs in a wild state we can only truly learn their aboriginal natures; because plants, like animals, begin to change their habits as soon as they are taken into cultivation. The fact that this change takes place ought to be borne in view, when speaking of the native soils and situations of different species; because, if it is desirable to improve these species, it may be necessary or advantageous, for that purpose, to place them in a different soil or situation from that in which they are found in a wild state. There are certain soils and situations, however, in which plants are found in a wild state, that can hardly be improved by art; these are peat bogs, or peaty soils, such as are found in North America, and in alpine situations. We mention these particulars merely as a few, among a great number, to which attention ought to be directed in giving the history of particular species of trees and shrubs, and in treating of their introduction into useful or ornamental plantations.

SECT. II. *Trees and Shrubs considered with Reference to Man.*

So various and so important are the uses of trees and shrubs to man, that to say much on the subject here is altogether unnecessary. It must be obvious, that to state what these uses are, in the case of every particular tree and shrub treated of in this work, will form an important part of the information given respecting it. It is not necessary, in every case, to mention how the different kinds of wood are used in particular arts or manufactures; but it is necessary to know, not only the particular sorts of timber, but what modifications of these sorts are best for particular purposes. For example, in the case of ship-building, it is not only necessary to know the different kinds of trees in demand by ship-builders, but the different purposes for which different parts of a tree, and different forms of its trunk or branches, are adapted, and to which they are applied.

Though the timber is the principal part of trees and shrubs which is employed in arts and manufactures, yet, in many cases, the other parts of a tree, such as the bark, leaves, flowers, fruit, &c., are of importance. Not only are trees used in their different parts after being felled, but, in some cases, a part of their products is gathered yearly; and some sorts, both of trees and shrubs, are in perpetual use in a living state, as fences for separation or enclosure, as avenues for shade, and as belts or screens for shelter. The ornament which trees and shrubs afford to gardens and grounds may also be considered as an important part of their use.

The rearing and culture of trees form an important part of their economical history; and require to be treated of, not only in the history of each individual species, but when treating of trees collectively in plantations. The commencement of the process of rearing is with the gathering of the seed, or the taking off of the cutting, or the forming of the layer; and the termination of the process of culture is with the felling of the tree, or the cutting down of the shrub.

CHAP. IV.

SUMMARY OF PARTICULARS TO BE TAKEN INTO CONSIDERATION IN PREPARING THE DESCRIPTION, AND NATURAL AND ECONOMICAL HISTORY, OF TREES AND SHRUBS.

In the three preceding chapters we have treated of the science of trees, as pictorial objects, or parts of general scenery; as organised beings, or botanical objects; and as forests or plantations, influencing the physical circumstances of a country, and the condition of man. Our object in those chapters was, to give a general idea of the extensive nature of the study of trees; and in the present chapter we propose to enumerate all the particulars which require to be taken into consideration in giving the specific character, description, history, and uses of each individual species, race, or variety. These particulars, arranged in the order in which they will stand in the succeeding part of this work, are as follows: —

1. *Classification.* We shall adopt the natural system, chiefly for the sake of aiding us in generalising on the genera and species which each order and tribe contains; and we shall refer, for the definitions of these orders and tribes, to the writings of Professor De Candolle and Dr. Lindley, and more especially to the *Prodromus* of De Candolle, and Lindley's *Introduction to the Natural System*, and to his modification of that work in his *Key to Structural, Physiological, and Systematic Botany*, published in 1835,
2. *Genera.* The genera of each order or tribe, with their characters, will be given immediately after the general character of the order or tribe, in the manner of De Candolle, and as adopted by G. Don, in his edition of *Miller's Dictionary*.
3. *Distinctive Characters.* The species, races, or varieties, of each genus, will be enumerated immediately after the enumeration of the genera; and their distinctive characters will be given, with the English name, habit, colour of the flower, and time of flowering, and year of introduction into Britain.
    - A. *Identifications.* These are references to some of the principal works in which the same plant has been described under the same name.
    - B. *Synonymes.* These will be given to as great an extent as can be done with certainty, or apparent advantage. Not only will the scientific synonymes be given, but also those in common or ancient use in this country, and the popular names in other countries.
    - C. *Derivations* will be given, not only of the generic and specific names, but of all the synonymes, where doing so is likely to prove either instructive or interesting.

4. *Engravings.* Engravings of certain species and varieties, to a scale of two inches to a foot, with the flowers and other parts which are less than an inch in diameter of their natural size, are given along with the text.
    - A. *Engravings of the Trees only* are given in the plates which form a separate volume. The engravings in these plates are of three kinds: first, there is the general figure of the tree, after being ten years planted in the climate of the environs of London, to a scale of one fourth of an inch to a foot. Secondly, on the same plate with the entire tree, are given engravings of botanical specimens in flower, and in fruit, with the winter's wood in the case of deciduous trees, to a scale of 2 in. to 1 ft.; and, when the flowers or fruits are smaller than an inch across, they are given of their natural size. Thirdly, engravings of full-grown trees of a number of the species are given; and, on the same plate, a specimen of the leaves to the usual scale of 2 in. to 1 ft. The use of the engravings of the entire trees, of ten years' growth, is to give a palpable idea of the comparative progress of hardy trees during that period, in a given soil and situation; and the use of the portraits of full-grown trees, all of which are taken from individuals within ten miles of London, is to give a palpable idea of the magnitude and general figure which the particular species assume, when full grown. These full-grown trees are drawn to the scale of one twelfth of an inch to a foot. The trees, whether full grown, or of ten years' growth, and the botanical specimens given along with them, are always referred to as plates; while the engravings of those species and varieties which are given along with the text are referred to as figures.
    - B. *Pictorial Signs.* At the commencement of each genus, or sectional division of a genus, will be placed a pictorial sign, or signs, indicating whether the species to be described are trees or shrubs, deciduous or evergreen, climbers, twiners, trailers, or creepers, &c.; and also to indicate whether they are of the first, second, or third degrees of height, of each of these habits. Before each species and variety will be placed one of the signs in our *Hortus Britannicus.*
5. *Descriptions.*
    - A. *Descriptive Details.* These will commence with the root, and proceed in the order of stem, leaves, stipules, inflorescence, bracteas, flowers, and fruit.
        - a. *The Root* will be considered in regard to figure, quality, substance, bark, duration, direction, rootlets, fibres, spongioles, susceptibility of producing buds when made into cuttings, liability to throw up suckers naturally, magnitude relatively to age, soil, native habitat and artificial location; impulsion, or when it is in most vigorous growth; and hibernation, or when it is in a state of rest.
        - b. *The Stem* will be considered in regard to its figure, direction, duration, articulation, surface, bark, ramification, branches, branchlets, twigs, height relatively to age, native habitat, and artificial locality.
        - c. *The Leaves* will be viewed with reference to their vernation, internal structure, figure, articulation, insertion, circumscription (that is, outline, base, and apex), surface, subface, venation, direction, colour, texture, and duration. *The Petiole* will be considered as to its absence or presence; and in the latter case its form, surface, texture, length, breadth, variation, duration, &c.
        - d. *The Stipules* will be considered with reference to position, texture, surface, insertion, figure, magnitude, and duration.
        - e. *The Inflorescence,* or mode in which flowers are disposed upon a plant, will be examined as to its kind and position.
        - f. *The Bracteas* will be examined under conditions similar to those prescribed for the leaves.
        - g. *The Flower* will be considered in regard to first appearance, first expansion, colour, magnitude, length of time it continues expanded before it begins to fade, whether the flowering of the whole plant is

simultaneous or continuous, the number of the flowers in proportion to the leaves or surface of the plant, and whether the flowers die off rapidly or slowly. *The Calyx* will be examined as to texture, structure, figure, station relatively to the ovarium and the axis of the flower, surface, size, proportion to the corolla, colour, æstivation, and duration. *The Corolla* will be viewed in its "structure, figure, station with respect to the ovarium and axis of inflorescence and adjacent parts, surface, æstivation, size, colour, proportion to the calyx and stamens, and venation." (*Lindl. Introd.*, p. 141.) *Stamens, Filaments, Anthers, Pollen, Disk, Ovaries, Ovules, Styles, and Stigmas,* will all be examined with a view to generic and specific definitions, as well as to general description.

h. *The Fruit* will be examined as to "texture, form; whether naked or covered with the remains of the floral envelopes; whether sessile or stipitate; mode of dehiscence, if any; number of its valves and cells; situation of the placentæ; nature of its axis; number of its seeds" (*Ibid.*, p. 442.); magnitude in a wild state, in cultivation; whether generally abundant or not abundant, conspicuous or not conspicuous; colour of the surface; when ripe, length of time in ripening, and duration on the tree.

i. *The Seed* will be considered scientifically in the generic and specific descriptions, and generally with a view to popular description. Scientifically, it will be examined as to "position with respect to the axis of the fruit, mode of insertion, form, surface; the texture and nature of the testa, arillus, and other appendages, if any; position of the raphe and chalaza. Albumen, its texture, if any. Embryo, its direction, position with respect to the axis of the fruit, to the hilum of the seed, and to the albumen; the proportion it bears to the mass of the latter; the form of its cotyledons and radicle; its mode of germination.' (*Ibid.*, p. 442.) Popularly, the seed will be considered as to magnitude, form, integuments, facility or difficulty of separation from its envelopes, peduncles, conspicuousness or inconspicuousness on the tree, duration of the vital principle, &c.

B. *General Descriptions.* After the distinctive characters of a species, race, or variety, have been given, that species, race, or variety, will be described more at length.

a. *Habit, Bulk, Figure, and Duration.* The entire plant will first be characterised, as whether tree, shrub, undershrub, twiner, climber by tendrils or by elongation, trailer, &c.; its bulk, figure, and duration will then be given, in a natural state in its native habitat, and in an artificial state, more especially in British plantations or gardens.

b. *Species.* In describing species, two objects will be kept in view; the first to convey a correct idea of the figure of the plant to one who has never seen it, so as to enable him to recognise it; and the second to communicate such ideas respecting its nature, its roots, branches, wood, seeds, &c., as may give a cultivator some notion as to how it may be propagated, and to what purpose its products may be applied.

c. *Races and Varieties* will be conducted on the same plan, and with a view to the same result as the descriptions of species.

d. *Mules, or Hybrids.* A hybrid may either be the produce of two aboriginal species, such as the *P*ỳrus spùria, in which we shall call it a mule; or it may be the produce of two races or varieties, as are most of our cultivated fruits; in which case, if it reproduces itself from seed it is a race, but if it can only be propagated by division it is a variety.

e. *Variations.* Variations differ from varieties in not being capable of being continued by propagation. The susceptibility of individuals to vary in their appearance with change of soil, light, or shade, or other circumstances; such as the flowers of the hydrangea becoming blue in certain soils, &c.; will be noticed as far as they are known: for, though none of these peculiarities can be continued by propagation, some of them may be produced by culture.

f. *Impulsion, or Rate of Growth.* The number of feet, or inches, made by shoots of one season's growth, in trees of different ages, will be given; and the height which the species generally attains in ten, in twenty, in thirty years, and when full grown, in the environs of the metropolis, will be stated as far as has been ascertained.

g. *Metamorphoses and Degeneracies.* The doctrine, that all the parts of a plant may be reduced to two (viz. an axis, and a leaf revolving round it), seems to have been hinted at by Linnæus, but was first brought forward in a conspicuous manner by the poet Göthe. (See De Cand., *Théorie E'lémentaire*, p. 105. and *Physiologie Végétale*, p. 771., and Göthe's *Versuch über die Metamorphose der Pflanzen*, 1831.) The doctrine is now generally adopted by botanists; and double flowers, and various other monstrosities and transformations, are referred to this head.

h. *The Anatomical Structure* of species will be noticed when it is, in any respect, remarkable; as, when it influences materially the texture or veining of the timber, or the susceptibility of the plant to be united to others by grafting, its fitness for resisting wind, &c.

i. *Physiology.* Anything remarkable in the functions of any species will be stated; together with its bearings on propagation, culture, or duration: such as the kind of sap, whether milky or watery, sugary or alkaline, &c.

k. *The Affinities of Species* constitute an important part of their study, with a view to their propagation and culture. Some species may be grafted, not only on every other species of the same genus, as in the case of *C*ratæ`gus, but on every species belonging to the same tribe, such as *P*rùnus: other species, which will not unite by grafting to all the species of their own genus, such as *P*ỳrus commùnis, which will not unite to *P*ỳrus *M*àlus, will yet unite to *C*ratæ`gus and *S*órbus. In general, plants which have milky sap will not unite with such as have watery sap, and, indeed, will not unite with other plants at all. Hence, *A*`cer *p*latanöìdes, according to De Candolle (*Physiologie Végétale*, vol. ii. p. 794.), cannot be grafted on any other species of the genus.

l. *Resemblances.* Some trees and shrubs bear a resemblance to one another without having any affinity, either organic or physiological; for example, the different species of *C*àrya, *R*hús, and *Ailántus;* or the common laurel and the Magnòl*ia* grandiflòra. These resemblances it will be useful to notice, with a view to ornamental plantations.

m. *Contemporary Foliation, Flowering, and Defoliation.* For the same purpose as that of indicating resemblances, it will be desirable to note trees and shrubs which come into flower at the same time; or which either come into leaf, or shed their leaves, contemporaneously.

6. *Casualties.* Trees and shrubs are liable to be preyed on by insects, to be injured by vermin and parasitical plants, attacked by diseases, and broken down or destroyed by accidents.

A. *Insects and Vermin.* The particular species of these which are either peculiar to certain species of trees and shrubs, or liable to attack them, will be described, and occasionally figured; and the means of protection from their ravages, when known, or of alleviation, or of cure, will be pointed out.

B. *Parasitical Plants.* Trees and shrubs are liable to be injured by the growth of lichens, mosses, and other parasites, on their leaves, bark, and wood; and by *F*úngi on their bark and leaves: among the latter class is the mildew.

C. *Diseases.* The diseases to which trees and shrubs are liable, exclusive of the injury done to them by insects and vermin, and by parasitical plants, are not many; but, still, some, such as the canker, &c., require to be noticed, when the species subject to them come under review.

D. *Accidents.* Some trees and shrubs are more liable than others to be blown down, or have some of their branches broken off by high winds, or by the weight of snow; and these species should be pointed out to the inexperienced planter. Some, also, are said to be less liable to be struck by lightning than others; for example, the beech.

7. *Geographical Distribution.* The different countries will be mentioned where each species is found naturally; and, where practicable, the different localities, soil, elevation, and other particulars will be given. It will also be stated, as far as is known, in what countries each species is cultivated, and to what purposes it is applied.

8. *History.* This subject may be included under two heads; viz. retrospective and prospective.

A. *The Retrospective History* of every species or variety will commence with its first discovery, or record by botanists; and its progress will be traced in every country, but more especially in Britain, from that period to the present time. Though the history of some trees and shrubs commences with the time of the Romans, yet that of others is comparatively obscure; and, of some of the finest ornaments of our gardens, little more can be stated than that they are races or varieties, perhaps hybrids, raised by cultivators whose names are unknown.

B. *The Prospective History*, or probable progress, of our knowledge of species may be included under the heads of doubtful species, unnamed species, and expected additions.

a. *Doubtful Species.* In almost every genus, containing several species, there are some of the names which are of doubtful application, which under this head we shall bring together, with their authorities, in order to direct the attention of botanists and cultivators to the subject.

b. *Unnamed Species.* The introduction of new species of trees and shrubs into British gardens is constantly going on, and numbers are also as constantly being raised from seed in the country. In general, neither of these kinds of additions to our ligneous flora can be received into books till they have flowered; when they are named, figured, and recorded in some botanical work. It often happens, however, that the genus to which a new plant belongs is discovered, from the general habit of the plant, long before it has flowered; and in such a case, though the species may not be introduced into botanical catalogues, plants of it may be distributed among cultivators by those who have introduced it, and it may be propagated for sale in the nurseries, under some provisional name. Such species, and also varieties raised in the country from seed, or otherwise procured, deserve notice in a work like the present, and we shall devote this head to the subject.

c. *Expected Additions.* The species of some genera are so numerous, and their geographical distribution is so extensive, that from these circumstances alone we may reasonably anticipate the discovery and the introduction of additional species. Of other genera, many species suitable for our climate, though not yet introduced, have been described by botanists as indigenous in different parts of the temperate hemispheres. It will be useful to direct attention to both these points, with a view of stimulating travellers and others to procure the additional species that are known; and wealthy individuals, or societies or associations, to send out collectors to discover those species which may be yet unknown.

9. *Use.* Trees and shrubs are used in the arts of construction, of machinery, and of fabrication; in the chemical arts of dyeing and colouring; in domestic and rural economy; and in medicine.

A. *The Arts of Construction* are, civil, military, and marine architecture; engineering, carpentry, joinery, cabinet-making, carving, and modelling;

and also cooperage, locksmithry, turnery, mathematical instrument-making, trunk-making, &c.

B. *The Manufacture of Machinery, Instruments, Implements, and Utensils,* comprehends the making of mills, machines, carriages, implements of husbandry, gates, fences, ladders, pumps, water-pipes, gun-stocks, spade-handles, and an almost innumerable number of similar articles.

C. *The Arts of Fabrication* are, weaving, rope-making, mat-making, &c.

D. *The Chemical Arts* include tanning, dyeing, colouring, the expression of oils, the extraction of sugar, the distillation of pyroligneous acid, of ardent spirits, the fermentation of wine, beer, &c.

E. *The Arts of Domestic Economy* include the preparation of wood for fuel, basket-making, and toy-making; the preparation of walking-sticks, fishing-rods, and other articles used in games, sports, pastimes, recreations, &c., and of chests, desks, and coffins.

F. *The Arts of Rural Economy* comprehend the use of trees and shrubs, in a living state, in agriculture, gardening, and planting; and, also, their use in producing leaves, or stems, to serve as food for domestic animals, fruit for food or drink for man, wood for fencing, draining, &c.

G. *Medicine.* Various parts of trees enter into the materia medica of the medical corporations; while others are used only in empirical practice: both uses will be noticed in a succinct manner.

H. *The Use of Trees by the Priests of particular Religions,* and the ancient uses of some of them as charms, &c., as of the oak and the mistletoe by the Druids, the rowan tree by the believers in witches, &c., will be slightly noticed.

I. *Poetical, Mythological, and Legendary Associations* are connected with various trees and shrubs; and the ideas which these species recall may be considered as a part of their use.

K. *The Picturesque and Decorative Uses of Trees* will, as far as respects planting them, be considered under gardening; but, under this head, will be noticed their suitableness for the landscape-painter; the architect, for architectural ornaments; the house decorator; the decorator of different arts and manufactures, such as those of china, printed tissues, paper hangings, &c.; and the decorator of theatres, triumphal arches, processions, &c.

10. *Propagation.* In general, all perfect plants may be propagated by all the different modes of propagation known either in nature or art. All perfect plants produce seeds, and may be propagated by them; and they all produce buds, and, for the most part, these buds may be separated from the parent plant, along with a portion of its wood, and inserted in the soil, or in other plants, so as to become plants also. But, as all trees and shrubs are not susceptible of being propagated by all modes with an equal degree of facility, the use of treating of the propagation of individual species is, to point out the methods which are considered most advantageous for each. It is also particularly necessary, to indicate certain modes of propagation as best adapted for certain purposes; as, for example, that of buds, or any other mode of division, for the continuation of varieties, &c.

A. *Natural Propagation* is effected by seeds, by side suckers or root suckers, and by surface stolones or underground stolones.

B. *Artificial Propagation* is effected by seeds, suckers, cuttings, layers, ringing, budding, grafting, and inarching.

a. *By Seeds.* Seeds are employed in artificial, as well as in natural, propagation. The subject embraces their ripening on the tree, their gathering, keeping, preparation for sowing, time of sowing, soil, situation, preparation, and time for transplanting.

b. *By Suckers.* These are of two kinds: side suckers, which rise up close to the stem of the plant, as in the case of the common lilac; and root suckers, which rise up from the roots of the plant, to whatever distance these may extend, as in the case of the common plum, the elm, and many other trees. The time of separation, the size, the future treatment, and the fitness of plants so produced relatively to those produced by other means of propagation, require to be considered.

c. *By Division.* Low-growing many-stemmed shrubs, such as the dwarf box, the butcher's broom, &c.; and some creepers, such as *Hy*péricum calycìnum, &c., are most easily propagated by taking up the entire conglomeration of plants, and separating them.

d. *By Cuttings.* Cuttings may be taken from the branches, or shoots, and either in summer or winter; they may also, in some cases, be taken from the trunks of trees of large size; they may be taken from roots in many cases; and some evergreens, such as the *Aúcuba*, and some deciduous shrubs, such as the Wistàr*ia*, may be propagated by leaves cut off with a bud in their axil. In all these methods, the season, soil, situation, shade, air, temperature, and time for transplanting, require to be taken into consideration.

e. *By Layers.* These may be made of the winter's wood, or of the summer's shoots, and by a variety of different modes of cutting, twisting, ringing, &c.; in all of which, the season, soil, and situation, and time for detaching and transplanting the layers, require to be treated of.

f. *By Ringing, and applying a Ball of Earth or Moss.* This is practised in various ways, with or without the aid of a perpetual supply of water; and, as in the preceding cases, the season, locality, and the nature of the subject, with other particulars, require to be mentioned.

g. *By Budding on other Plants.* Here we have to consider the kind of stock; its age; its influence on the scion; the modes of performing the operation, which are various; the age of the scion from which the buds are taken; the time when the plant is fit for transplanting; and other particulars.

h. *Budding in the Soil.* Leaves with buds in their axils will, in various cases, both of deciduous and evergreen trees and shrubs, produce plants. Buds, also, without leaves, but with small portions of wood cut from trees, in some cases from the old wood, as in propagating the olive, and in others from the young wood, as in propagating the vine, will produce plants. Buds in the roots may also be so employed; as in the case of many of the *R*osàceæ. In general, the buds of the trunks and roots are latent germs, and not visible on the portions that are employed for propagation.

i. *By Grafting.* With reference to this operation, the kind of stock should be indicated, its age, and its influence on the scion; the mode of performing the operation; the season; the age of the scion; and the time when the subject is fit for transplanting.

k. *By Inarching.* Here the same considerations require to be taken into view as in grafting; with various additional ones, respecting the mechanical position of the stock, in the case of inarching the branches of high trees into stocks in pots.

11. *Culture.* This subject embraces the soil, situation, and exposure; the rearing and culture in the nursery; the choice of plants, and planting out; the final culture and management of the plant till it dies, is felled, or cut down; and the species adapted to succeed it.

A. *The Soil, Situation, and Exposure.* In general it may be asserted that the component parts of soils are only of importance relatively to their capacity for retaining, or parting with, moisture; but some plants are absolute in their choice, and will only thrive in particular soils.

B. *Culture in the Nursery.* This, in some cases, will require to be carried on for some time under glass or in pits, or against a wall or with some kind of protection; it may require the plant to be kept in a pot or box, in a shaded or light situation, in a close or airy one, in rows in beds, or singly, &c. The time when the plant will be fit for final transplanting will require to be mentioned; and, also, what is of very considerable importance, to what size or age the tree or shrub may be kept in the nursery and still be fit to transplant; the number of times which it ought to be transplanted while it remains in the nursery, till it attains that size; its pruning; protection from the weather, from insects, epiphytes, parasites, diseases, &c.

C. *Choice of Plants, and Planting out.* Some plants are better adapted for transplanting at one age than another; and while some may be taken at once from the seed bed or nursery lines, others should be grown in pots, for more convenient deportation, with all their fibrous roots and spongioles in a living state.

D. *Culture after final Removal.* This will embrace the treatment of the plant, as a single tree or shrub in a park or lawn; its treatment, as part of a picturesque group, or as part of a gardenesque group; against a wall, as a climber, twiner, trailer, or creeper; collectively, in ornamental plantations, whether gardenesque or picturesque; in useful plantations, whether arranged methodically or planted irregularly; in geometrical plantations; in architectural or sculptural plantations; in avenues, arcades, hedgerows, and hedges.

E. *Species adapted for Succession.* Natural forests, when they decay by age, are destroyed by fire, or cut down by man, are generally succeeded by a different species of tree from that which before prevailed. It is desirable to imitate this natural process by art, as far as experience and science can direct; and some space will therefore be devoted to the consideration of the subject, in its proper place in our *Encyclopædia of Arboriculture.*

12. *Statistics.* By statistics is to be understood the actual state of any science or art; and the statistics of trees and shrubs may be included under the heads of geographical statistics, and commercial statistics.

A. *Geographical Statistics.* Under this head we shall include the notices of the age and the dimensions of the trees and shrubs of temperate climates, which we have obtained in consequence of the circulation of the printed forms which we have called Return Papers (see *Gard. Mag.*, vol. x. p. 582.), in Britain, on the Continent, and, as far as we have been able, in North America. The information thus obtained will be useful, as showing the undoubted hardiness of some trees and shrubs; the comparative suitableness of certain soils and climates for particular kinds; those which in general may be considered as most hardy, or of most rapid growth; which attain the largest size, or the greatest age; which are most profitable, or most ornamental, &c.; but, above all, it will show the comparative advances which trees make in a soil prepared, or not prepared, in different parts of Britain. The statistics of trees will be arranged as Domestic and Foreign.

a. The Domestic Notices of the existence of trees and shrubs in certain places, together with notices of their age, rate of growth, &c., will be placed under the heads of —

- a. *In the Environs of London;* that is, within a radius of ten miles from the metropolis.
- *b. South of London;* that is, in the English counties which are situated wholly, or in the greater part, south of the metropolis
- *c. North of London;* that is, in the English counties which are situated wholly, or in the greater part, north of the metropolis.
- *d. Wales;* taking the counties alphabetically.
- *e. Scotland;* in the same order as in England.
- *f. Ireland;* also in the same order.

b. *The Foreign Notices* of the existence and dimensions of trees and shrubs, which we have received, or have collected from books, will be given in the following order: —

a. Europe. 1. France. 2. Belgium and Holland. 3. Germany.

4. Denmark. 5. Sweden and Norway. 6. Russia and Poland. 7. Switzerland. 8. Italy, Greece, Spain, and Portugal.

b. America. 1. North America. 2. Mexico. 3. South America.

c. Asia. 1. Asia Minor. 2. India. 3. China. 4. Japan.

d. Australia and Polynesia. 1. Van Diemen's Land. 2. New South Wales. 3. New Zealand.

B. *Commercial Statistics.* Trees and shrubs are objects of commerce: in their young state, as plants; and in their more matured state, as timber, fencewood, fuel, bark, leaves, fruit, seeds, &c.

a. *Nursery Commerce, domestic and foreign.* Some trees and shrubs, from being in little demand, are scarcely known out of private gardens, or public botanical establishments; others are cultivated in the nurseries, some very generally, and others only partially. Under the head of Commercial Statistics, we shall notice whether the species is cultivated only in some nurseries, or generally; and we shall give the prices of plants of the smallest size fit for transplanting, and also of seeds when they are to be procured: in London; in the extensive nurseries of Messrs. Baumann at Bollwyller on the Rhine, as a situation central for France, Germany, Switzerland, and Italy; and in New York, as a central situation for North America.

b. *General Commerce, domestic and foreign.* Under this head it will be our object to notice such trees, or their products, as are in general transfer in the internal commerce of the country; and such, also, as are exported or imported. Some woods, as the pine, fir, oak, elm, &c., are in general commerce; and so, also, are some other products, such as oak bark; but the timber of the spindle tree and the laburnum, the inner bark of the holly, and the flowers of the elder bush, enter into the commerce only of particular places. What we shall state respecting either the foreign or domestic commerce of trees and shrubs, will be limited to what relates to the trees and shrubs of temperate climates; that is, to those species which are described in this work.

Such is the *beau idéal* of the desiderata which we intend to keep in view, when describing each species; but we by no means bind ourselves to have, in our descriptions, a separate heading for each of the paragraphs in this Chapter; on the contrary, it will generally be found, that all that we have to say respecting each species will be included in the paragraphs entitled, *Identification, Synonymes, Derivation, Engravings, Specific Character, Varieties, Description, Geography, History, Properties and Uses, Soil and Situation, Propagation and Culture, Accidents and Diseases, and Statistics.*

All the matter included under the first four headings, as being of less interest to the general reader, we have placed in small type, in order that it may occupy but little space, and be easily passed over by those who do not wish to read it. We have also placed in small type the whole of the matter relating to species which have not been seen by us; and also to those which are only half-hardy, and require either to be planted against a conservative wall, or otherwise to receive some kind of protection during the most severe weather in winter. We have done this, though we consider what relates to the species which require some protection, as likely to prove one of the most interesting parts of our work to many gardeners and amateurs (for what would the enjoyments of gardening be, without the elegant cares of exotic culture?), in order that those who take an interest only in hardy trees and shrubs may distinguish, at a glance, what belongs to them.

PART III.

THE ARBORETUM AND FRUTICETUM BRITANNICUM; OR THE DESCRIPTION, HISTORY, PROPERTIES, AND USES, OF THE HARDY TREES AND SHRUBS OF BRITAIN, INDIGENOUS AND FOREIGN.

Trees and shrubs, in common with all other perfect plants, are arranged by botanists in two grand divisions; viz. the Exogenous, or Dicotyledonous, plants, the stems of which increase from without; and the Endogenous, or Monocotyledonous, plants, the stems of which increase from within. The first class includes all the hardy trees and shrubs in Britain, with the exception of shrubs of the genera *Yúcca*, *S*mìlax, *R*úscus, and one or two others; and this circumstance, as well as the fact, that the trees and shrubs of Britain are comprised in a very few orders and tribes, has determined us to neglect the great scientific divisions of the natural system, and to adopt only those of the orders and tribes. We proceed, therefore, with the orders of the natural system, much in the same series as that in which they are laid down in De Candolle's *Prodromus*, Don's *Miller's Dictionary*, and in our *Hortus Britannicus*, giving the orders as chapters, and the tribes as sections, and including in our distinctive character of each order, the characteristic of the division to which it belongs: that is to say, whether to Dichlamýdeæ Thalamiflòræ, Dichlamýdeæ Calyciflòræ, Dichlamýdeæ Corolliflòræ, or Monochlamýdeæ.

CHAP. I.

OF THE HARDY LIGNEOUS PLANTS OF THE ORDER *R*ANUNCULA`CEÆ.

The term *R*anunculàceæ is applied to this order, because all the plants contained in it have, more or less, the character of the genus *R*anúnculus. The diagnostic, or distinctive character, of the order is thus given by Dr. Lindley:— "Polypetalous dicotyledons, with hypogynous stamens [that is, stamens under the pistil]; anthers bursting by longitudinal slits; several distinct simple carpella [fruits]; exstipulate leaves, sheathing at their base; solid albumen; and seeds without arillus." (*Introd. to the Nat. Syst.*, p. 6.)

The only ligneous plants belonging to this order are, some species of *C*lématis and *A*tragène, one of *P*æònia, and the genus Xanthorhìza. The stems of the species alluded to, though they are botanically considered as ligneous, yet have very little claim to the appellation in the common sense of the word; and, indeed, with the exception of the stems of *C*lématis Vitálba, *C.* Flámmula, and one or two other species of *C*lématis and Xanthorhìza, the stems of the plants belonging to this order might be almost called subherbaceous. The species are chiefly natives of Europe and North America; but some are from India, China, and Japan. The *R*anunculàceæ are considered to indicate a cold damp climate, and to be acrid, caustic, and poisonous, though the root of the peony is said to be antispasmodic. All the plants of the order, with the exception perhaps of a few of the species, seem to be extremely tenacious of life. The tubers of the common ranunculus and anemone, if kept dry, will vegetate at the end of two, and even three, years; and the seeds of most of the species, more especially those of the *C*lematídeæ, may be kept a number of years without impairing their vital powers. The tribes containing ligneous plants are two, *C*lematídeæ and *P*æoniàceæ. The last tribe belongs to a division of the order consisting of what are considered as spurious *R*anunculàceæ. It includes the ligneous genera, Xanthorhìza and *Pæònia*, which even a superficial observer may recognise as differing, in habit and appearance, from the genera *C*lématis and *A*tragène, which are slender-stemmed climbers, while the others are herbaceous-looking undershrubs.

Sect. I. CLEMATI´DEÆ.

THESE are climbers, characterised by having the æstivation of the calyx valvate or induplicate; with no petals, or with the petals flat; the anther opening outwards; the carpels, or seed-vessels, not opening; one-seeded, terminated by a tail, which is the indurated style. Seed pendulous. Leaves opposite. Deciduous and evergreen climbers. The genera are two; *C*lématis and *A*tragène, which are thus contradistinguished:—

*C*LE´MATIS *L.* Petals none.
*A*TRAGE`NE *L.* Petals several.

GENUS I.

CLE´MATIS *L.* THE CLEMATIS, *or VIRGIN'S BOWER.* *Lin. Syst.* Polyándria Polygýnia.

Identification. The word *Klēmatis* is said by Donnegan to have been used by Theophrastus, cap. 5.10., as well as *A*tragène, to designate the *C*lématis Vitálba of Linnæus. Clematis was used by Matthiolus, and also by Clusius, who applied it to *C.* Viticélla *L.* and *C.* cirrhòsa *L.* It has been since generally applied to this family of plants by botanists.

Synonymes. Ladies' Bower *Gerard*; Clématite, *Fr.*; Waldrebe, *Ger.*; Clematide, *Ital.*

Derivations. The word Clematis, or Klematis, is derived from the Greek word *klēma*, a small branch of a vine; and it is applied to this genus, because most of the plants composing it climb like a vine. The English name of Ladies' Bower was probably adopted from its suitableness for covering bowers; and, as the first kind of clematis brought to England (*C.* Viticélla) was introduced in 1569, during the reign of Elizabeth, the name of Virgin's Bower might be intended to convey a compliment to that sovereign, who, as it is well known, liked to be called the Virgin Queen. The German name, Waldrebe, is compounded of *wald*, a wood, and *rebe*, the branch of a vine.

Generic Character. *Involucre* none, or situated under the flower, in the form of a calyx. *Calyx* of from four to eight coloured sepals. *Petals* none. *Carpels* numerous, aggregate, terminated by a long, and mostly feathery, tail.—Climbing shrubs, with variously cut opposite leaves. The recent herb of all the species is acrid, and, when applied to the skin, it occasions blisters. (*Don's Mill.*, i. p. 3.) The seed is pendulous, and the carpels are one-seeded; each is terminated by a persistent style, and does not open until ruptured by the germination of the seed.

Description, &c. Root strong; the fibres rather straight, and not very much branched; extended in the soil rather horizontally than perpendicularly. Stem ligneous, not rigid enough to stand erect. Branches the same, and slender. Leaves in decussating pairs; the petiole possessed of a clasping power, the effect of which is the prehension of contiguous plants and objects. The rate of growth in *C.* Vitálba and *C.* Flámmula is among the most rapid known in the plants of temperate climates, particularly in the shoots which a well-established vigorous plant throws up, after it has been cut down to the ground. The most ornamental species are *C.* Viticélla and *C.* flórida; the most rapidly growing for covering bowers is *C.* Vitálba. The kind most fragrant in its flowers is *C.* Flámmula.

Geography, History, Uses, &c. Most of the hardy species of *C*lématis are natives of the middle and south of Europe, and of North America; a few of them are natives of the north of Africa, some of Siberia; there are several in the Himalaya, one in China, and several in Japan. The genus has been known since the days of Theophrastus, and has received various accessions from the time of Matthiolus to the recent introductions from the Himalaya. The acrid properties of the *Clématis* are well known to herbalists. The bark, leaves, and blossoms are used to raise blisters on the skin, or to produce a slight external inflammation : taken internally they are a corrosive poison. The flowers contain a peculiar substance, called clematine, which is similar to gluten; the green leaves, bruised, are applied to ulcers, to produce sloughing. The floricultural use of these plants is, to cover bowers, or ornament verandas or trellis-work. The greater number of them ripen their seeds in England, and are easily propagated by them, or by layers. They all require support by props of some kind; and all grow freely in any soil that is tolerably dry, but more especially in one that is calcareous. From the acridity of these plants, they are not very liable to be attacked by insects; nevertheless, snails and slugs are occasionally found eating their young herbage. Most of the species and varieties which we shall describe are to be found in the principal botanic gardens of Europe, and have been seen by us in that of the Horticultural Society of London; and the more ornamental of them are cultivated for sale in the principal European and American nurseries.

The ligneous species of *Clématis* are included in four sections; viz. Flámmula, Viticélla, Cheirópsis, and *A*nemoneflòra.

§ i. *Flámmula* Dec.

Sectional Character. Involucre wanting. Tail of the carpels long, bearded and feathery. Cotyledons distant in the seed. (*Don's Mill.*, i. p. 3.)

⚘ 1. CLE'MATIS FLA'MMULA *L.* The inflammatory-*juiced* Clematis, *or sweet-scented Virgin's Bower.*

Identification. Lin. Sp., 766.; Willd. Sp., 2. p. 1293.; Hayne Den., p. 119.; Lam. Dict. Encyc., 2. p. 42.; Dec. Prod., 1. p. 2.; Don's Mill., 1. p. 4.
Synonymes. *C.* ùrens *Gerard*; *C.* marítima *All. Ped.*; *C.* suavèolens *Salisb. Prod.*; Clematite odorante, *Fr.*; Scharfe waldrebe, *Ger.*
Derivation. From *flammare*, to inflame; on account of the blistering qualities of the species.
Engravings. Park. Theat., p. 381. f. 3.; Knorr. His., 2. p. 9.; and our *fig.* 9.

Specific Character. Leaves pinnate, smooth; with orbicular, oval, oblong or linear, entire or three-lobed, acutish leaflets. (*Don's Mill.*, i. p. 4.) Flowers white. July to Oct. Height 15 ft. 1596.

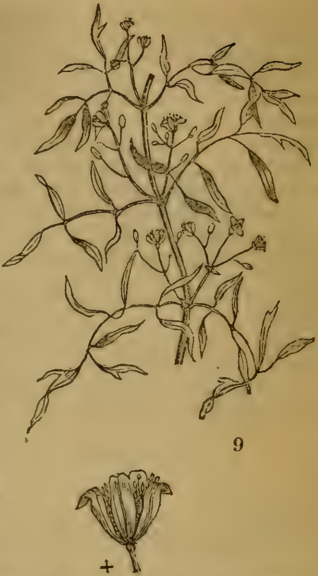
Varieties and their Synonymes. The following are given by De Candolle; but they are not of much importance in point of general effect.

- ⚘ C. *F.* 2 *rotundifòlia* Dec., *fràgrans* Tenore.—Leaflets almost orbicular.
- ⚘ C. *F.* 3 *marítima* Dec. — Leaflets linear.
- ⚘ C. *F.* 4 *rubélla* Dec. — Leaflets oval, usually emarginate. Sepals four, reddish on the outside.
- ⚘ C. *F.* 5 *cæspitòsa* Dec., C. *cæspitòsa* Scop., C. *Flámmula* Bertol. — Leaflets minute, entire, or cut.

Description. A vigorous-growing plant, the stems of which attain the length of 10 ft. or 15 ft. in a wild state, and from 15 ft. to 30 ft. in a state of culture. The leaves of the entire plant are subject to much variation, from soil, situation, and climate. The shoots of a well-established plant, which has been cut down, grow with great rapidity in the early part of the season, attaching themselves to whatever is near them. The peduncles of the flowers are sometimes simple and sometimes branched. The colour of the sepals is white, slightly pubescent on their exterior margins. The whole plant has a dark green hue; and in autumn it is abundantly covered with flowers, the odour of which is of a honeyed sweetness, exceedingly disagreeable to some persons when near, though at a distance it is not unlike the fragrance of the common hawthorn. The number of the styles varies from five to eight, each style terminating in a little white feathery process when the seed ripens: the plant at that time appears covered with little tufts of cotton. In its native habitats this plant flowers in July and August; but in Britain it continues in flower from July to October. From the rapidity of its growth, it will in four or five years cover a very large space of wall, roof, or bower. Its herbage is considered less acrid than that of any other of the European species, notwithstanding its name of Flámmula. (*Dec. Syst.*)

Geography. This well-known species seems confined to the middle and south of Europe and to the north of Africa. It is found in the south of France in hedges, and in waste bushy places; in Greece, Italy, Spain, and Portugal (see p. 132. and p. 164.), and in all these countries, generally in low situations, not far from the sea, and in soil more or less calcareous.

History and Use. *C.* Flámmula appears to have been first recorded by Dodonæus, in his *Stirpium Historiæ Pemptades*, in 1585; it was recognised by Matthiolus and L'Obel, and cultivated by Gerard in 1597; and it is now generally grown in gardens throughout Europe and North America for covering bowers, garden-houses, trellis-work, and naked walls; for which purposes it is well adapted from its rapid growth, its intense fragrance when in flower, and its tufted cottony masses when in seed.



Statistics. Plants may be had in all the European nurseries: about London, of the smallest size, at about 5*s.* per hundred, or 6*d.* for a single strong plant; at Bollwyller, at from 6 francs to 8 francs the hundred, or about half a franc a plant; and at New York, for 30 cents per plant.

⚘ 2. *C.* ORIENTA`LIS *L.* The Oriental Clematis.

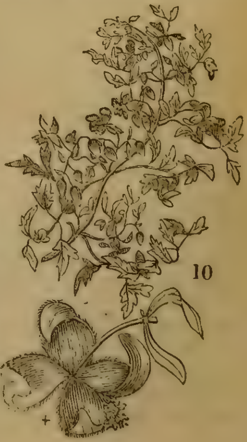
Identification. Lin. Sp., 765.; Willd. Sp., 2. 1289.; Lam. Dict. Enc., 2. p. 42.; Hayne Dend., 119.; Dec. Prod., 1. p. 3.; Don's Mill., 1. p. 4.

Synonymes. Flammula scandens apii folio glauco, *Dill. Elth.*, 144.; *C.* flàva *Moench. Meth.*, 296.; the eastern, or yellow-flowered, Virgin's Bower; Clematite orientale, *Fr.*; Morgenländische Waldrebe, *Ger.*

Engravings. Dill. Elth., t. 119. f. 145.: and our *fig.* 10.

Spec. Char. Leaves pinnate; leaflets smooth wedge-shaped, with three toothed pointed lobes. (*Don's Mill.*, i. p. 4.) Flowers greenish yellow, slightly tinged with russet, sweet-scented. Aug. Sept. 1731. Height 15 ft.

Description. The general magnitude of this species resembles that of *C.* Flámmula, from which it differs, in its ulterior branches being more persistently ligneous, though the main stem in old plants is seldom seen so thick as that of *C.* Flámmula. It is also distinguished from the latter species by throwing up suckers freely, which the other does not. Its leaflets are glaucous, flat, large as compared with those of *C.* Flámmula, and it does not produce flowers so profusely as that species; the flowers are yellowish, and not so strongly scented; and the carpels are dissimilar, though still cottony in appearance when the seed is ripe.



Geography, History, &c. C. orientàlis was discovered by Tournefort in the Levant, and sent by him to the Paris Garden; whence it was sent to Clifford's garden in Holland, and, in 1732, to that of Dr. Sherard at Eltham; when it was first described and figured in the *Hortus Elthamensis.* The plant has been subsequently discovered in Caucasus by Bieberstein, and described by him in his *Flora Taurico-Caucasica.* It is not very generally cultivated, though it is found in several botanic gardens, and may be purchased in some nurseries. Plants of it are in the garden of the London Horticultural Society. Price, in London, 1*s.* or 1*s.* 6*d.* a plant; at Bollwyller, ?; and in New York, ?.

⚘ 3. *C.* [? o.] GLAU'CA *W.* The glaucous-*leaved* Clematis.

Identification. Willd. Arb., 65., and Sp. 2. p. 1290.; Dec. Prod., 1. p. 3.; Don's Mill., 1. p. 4.
Engravings. Willd. Arb., 65. t. 4. f. 1.; Den. Brit., 73.; and our *fig.* 11.

Spec. Char. Leaves pinnate; leaflets smooth, glaucous, wedge-shaped, with entire bluntish lobes. Peduncles trifid. (*Don's Mill.*, i. p. 4.) Flowers yellow, scentless. July. 1800. Height 10 ft.

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Description. The general appearance is the same as that of *C.* orientàlis, of which it is probably only a variety; but the whole plant is more decidedly glaucous.

Geography, History, &c. Found in the southern parts of Siberia, in sandy wastes, by Pallas; but when it was introduced into Britain is uncertain. Cultivated in Knight's Exotic Nursery, King's Road, Chelsea, where it flowered in 1822, and whence it was figured by Watson in his *Dendrologia.* There is a plant of it in the London Horticultural Society's Garden, which bears so strong a resemblance to *C.* orientàlis, that, supposing them to be correctly named, we have no doubt of their being the same species.

⚘ 4. *C.* CHINE'NSIS *Retz.* The Chinese Clematis.

Identification. Retz. Obs., 2. p. 18.; Dec. Syst., 1. p. 137.; Don's Mill., 1. p. 4.
Synonymes. *C.* sinénsis *Lour. coch.*, 1. p. 422.

Spec. Char. Leaves pinnate; leaflets ovate-lanceolate, quite entire. Peduncles few-flowered, longer than the leaves. Ovaries usually four, with almost naked tails. (*Don's Mill.*, i. p. 4.) Flowers [?] purple. 1820. Height 15 ft.

Description. This plant is described in De Candolle's *Systema,* from a dried specimen which he had seen in the Banksian Herbarium. There is a living plant in the Horticultural Society's Garden, which grows vigorously against a wall, producing shoots as long and strong as those of *C.* Flámmula; and retaining its leaves till they are blackened by frost. This plant has never flowered in England; but, in its leaves and its general appearance, it seems to resemble *C.* orientàlis.

Geography, History, &c. This plant was found in China, in the island called Danes, whence it was received by the Horticultural Society in 1820. It is planted in the garden at Chiswick against a wall, with a southern exposure, and receives some slight protection during winter.

⚘ 5. *C.* PANICULA`TA *Thun.* The panicled Clematis.

Identification. Thunb. Lin. Soc. Trans., 2. p. 337.; Willd. Sp., 2. p. 1291.; Dec. Prod., 1. p. 3.; Don's Mill., 1. p. 4.
Synonymes. *C.* Vitálba japónica *Houtt. Pflanz.*, 7. p. 309.; *C.* críspa *Thunb. Fl. Jap.*, p. 239.
Engravings. Houtt. *Pflanz.*, 7. p. 309. f. 2.

Spec. Char. Leaves pinnate; leaflets ovate, cordate, acute, entire. Peduncles panicled, many-flowered. (*Don's Mill.*, i. p. 4.) Flowers white, and sweet-scented. 1796.

Description. Described by De Candolle in his *Systema*, from dried specimens, from which it appears that the flowers resemble those of *C.* Flámmula in form and colour, and, like them, also, are sweet-scented.

⚘ 6. *C.* VITA'LBA *L.* The White Vine Clematis, *or Traveller's Joy.*

Identification. Lin. Sp., 766.; Willd. Sp., 2. p. 1292.; Fl. Br., 583.; Hook. Scot., 171.; Lam. Dict. Enc., 2. p. 41.; Hayne Den., p. 120.; Dec. Prod., 1. p. 3.; Smith's Eng. Fl., 3. p. 39.; Don's Mill., 1. p. 4.
Synonymes. Athragenē *Theoph.*; *Vítis* sylvéstris *Dios.*; *C.* latifòlia seu *Atragène Ray*; *C.* áltera *Matth.*; *C.* tértia *Com.*; Viórna *Ger.* and *Lob.*; *Vítis* nígra *Fuch.*; Vitálba *Dod.*; the Old Man's Beard,

Bindwith, the common Virgin's Bower, the wild Climber, the great wild Climber; Clematite brulante, Clematite des Haies, l'Herbe aux Gueux, la Viorne des Pauvres, *Fr.*; Gemeine Waldrebe, *Ger.*

Derivation. This plant was called *Vitis sylvéstris* (the wood vine) by Dioscorides; and the name of Vitálba was given to it by Dodonæus, probably on account of the white appearance of the plant when covered with its seeds in autumn, which whiteness arises from the hairy tails of the carpels. It was called *C.* latifòlia by Ray and Bauhin, from its broad-leaved variety; Viórna by L'Obel and others, from *via*, a way, and *ornare*, to ornament, in allusion to its ornamental appearance by the way side; and *Vitis* nìgra by Fuchsius, from the dark colour of the bark of its young shoots. Gerard gave it the name of the Traveller's Joy; because of its "decking and adorning the ways and hedges where people travel; and thereupon," he says, "I have named it the traveller's joy." (*Herbal*, by Johnson, p. 886.) The name of Old Man's Beard is very appropriate to the white and hairy appearance of the tails of the carpels; and Bindwith, from the shoots being used instead of those of willows for tying up plants. The French name of *Clematite brulante* has reference to the acrid properties of the plant; and *Clematite des Haies* to its growing generally in hedges. The name of *l'Herbe aux Gueux* refers to the employment of it by the beggars in France, who use it to make ulcers in their arms and legs, for the purpose of exciting compassion, curing themselves afterwards by the application of the leaves of the beet. *La Viorne des Pauvres* alludes to the same practice, *viorne* being evidently derived from Viórna. (*Dict. Gén. des Eaux et Forêts*, 1. p. 649.)

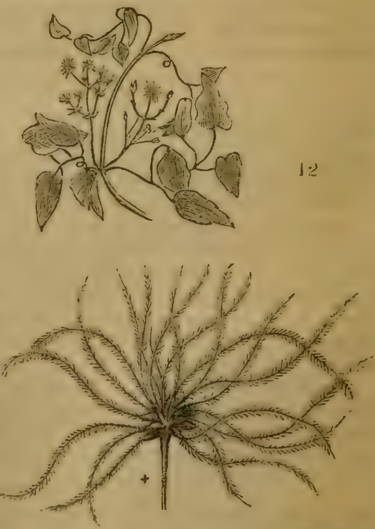
Engravings. Jacq. Austr., 4. t. 308.; Eng. Bot., 612.; Willd. Abr., t. 113.; and our *fig.* 12.

Spec. Char. Leaves pinnate, leaflets ovate-lanceolate, acuminated, cordate at the base, partly cut. Peduncles forked, shorter than the leaves. (*Don's Mill.*, i. p. 4.) Flowers white. From July to September. Britain. Height 20 ft.

Varieties.

⫛ C. 2 *V. integràta.* *The entire-leaved White Vine Clematis.*

⫛ C. *virginiàna* L., to be hereafter described, is considered by some to be only a variety of *C.* Vitálba. It was cultivated under the name of *C.* canadénsis by Miller, who says that "it is very like the common sort, but with broader leaves, and rather more tender, the seeds not ripening in England unless the season be very warm."



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Description. The stems are woody, more so than those of any other species, angular, climbing to the height of 20 ft. or 30 ft. or upwards, and hanging down from rocky cliffs, ruins, or the branches of trees; or being supported by, and forming tufts on, the upper surface of other shrubs, or low trees, which they often so completely cover as to have the appearance of bushes at a distance. The footstalks of the leaves are twined about whatever object they approach, and afterwards become hard and persistent, like the tendrils of a vine. The leaves are either quite entire, or unequally cut; sometimes very coarsely so. The panicles are axillary and terminal, many-flowered and downy. The flowers are of a greenish-white colour with little show; but they have a sweet almond-like scent. "The seeds," Smith observes, "have long, wavy, feathery, and silky tails, forming beautiful tufts, most conspicuous in wet weather. [The water on the twigs and branches, which form the back ground to the carpels, rendering them darker than they are in dry weather.] They retain their vegetative principle for many years, if kept dry." (*Eng. Flora*, iii. p. 39.)

Geography. *C.* Vitálba is found throughout the middle and south of Europe, in the Grecian Archipelago, and in the north of Africa, about Tripoli. One or more varieties of it have been found in North America, and apparently another in Nepal. (See *Dec. Syst.*, i. p. 140.) The topography of this plant in Britain, according to H. C. Watson, extends to Devonshire in the south, and 53° north latitude. According to some, it is found in Scotland; but Gerard, and also Winch, assert that it is not indigenous in the north of England, which we believe to be the fact. It is common in France and Germany, and is found in the south of Sweden, but not in Denmark.

History. This species appears to have been first recorded by Theophrastus, as Athragenē and also as Klēmatis; and it has been since frequently mentioned by botanists, under various names, given in our list of synonymes, from the time of Dioscorides to the days of Linnæus.

Properties and Uses. Du Hamel states, that the French gardeners not only use the twigs of this plant instead of withs, for tying up their plants, but that, after stripping them of their bark, they make very neat baskets of them (*Traité des Arbres, &c.*, 1st edit. 1755, p. 175.); and they also make of them beehives and a variety of other articles of the same kind. The twigs are in the best state for making these articles in winter; and their flexibility is increased by holding them to the fire before using them. Desfontaines says that the young shoots are not corrosive while they are tender and herbaceous, and that in the south of France they feed cattle with them in that state, and eat them pickled in vinegar. It is also said, in the *Dictionnaire Général des Eaux et Forêts* (vol. i. p. 649.), that a very good paper has been made from the feathery part of the seed. Professor Burnet observes that *C.* Vitálba is used in medicine as a rubefacient in case of rheumatism; and that the dried leaves of the plant form a good fodder for cattle, though they [we presume, the matured ones] would poison the animals if they were eaten in a fresh state; hence affording a good example of the rule which predicates the volatile nature of their acridity. (*Outlines of Botany*, vol. ii. p. 338.) The shepherds, in some parts of England and Germany, often cut pieces of the old wood of this plant, which they light at one end, and smoke like a pipe of tobacco. In gardens and plantations the plant is valuable for the rapidity with which it may be made to cover naked walls, unsightly roofs of sheds, or low buildings and arbours; and also to shelter exposed situations, and for a variety of similar purposes. It is interesting both when in flower and when in seed; and the seeds remain on the greatest part of the winter.

Soil and Situation. It is generally found on chalky or calcareous soils, and seldom, if ever, under the dense shade of trees. On the contrary, when it grows up among bushes, it generally spreads over their upper surface, so that its leaves and flowers are fully exposed to the influence of the light and air.

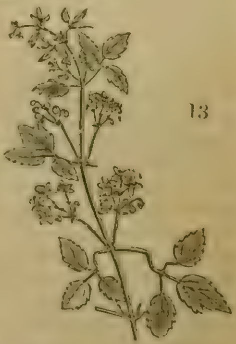
Propagation and Culture. It is readily propagated by seeds, which often remain eighteen months in the soil before they germinate. It will root by layers; but the plant being common in a wild state throughout Europe, it is seldom cultivated in nursery gardens.

7. *C.* VIRGINIAˋNA *L.* The Virginian Clematis.

Identification. Lin. Amœn., p. 275.; Willd. Sp., 2. p. 1290.; Lam. Dict., 2. p. 43.; Mich. Fl. B. Amer., 1. p. 318.; Dec. Prod., 1. p. 4.; Don's Mill., 1. p. 5.

Synonymes. *C.* canadénsis trifòlia rèpens *Tourn.*; *C.* canadénsis *Mill. Dict.*, No. 5., *Salisb. Prod.*, 371.; *C.* cordifòlia *Moench. Supp.* 104.; the broad-leaved Canada Virgin's Bower; Clematite de Virginie, *Fr.*; Virginische Waldrebe, *Ger.*

Engravings. Pluk. Mant., t. 389. f. 4.; Alb. Acad. Ann., 1. p 79. t. 7.; Den. Brit. (the male plant), t. 74.; En. Pl., f. 7978.; and our *fig.* 13.



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Spec. Char. Flowers panicled, diœcious. Leaves ternate; leaflets cordate, acute, grossly-toothed, or lobed. (*Don's Mill.*, i. p. 5.) Flowers greenish white, fragrant. June to August. 1767. Height 15 ft.

Variety.

C. v. 2 *bracteàta* Dec. *The bracted Virginian Clematis.* — "Leaflets ovate-lanceolate, entire." *C.* bracteàta *Moench. Supp.*, 103.

Description. The general appearance of this plant is like that of *C.* Vitálba; but it is less robust in all its parts, and less ligneous in its stems and branches; and it is also somewhat more tender. Miller states that, on this last account, it seldom ripens seeds in England (see p. 236.); but, as it is diœcious, it is possible that he possessed only the male plant.

Geography, History, &c. Found in North America, from Canada to Florida, in hedges, on the margins of woods, and on the grassy banks of rivers. It was cultivated by Miller in 1767; and, though it is not so ornamental as most of the other species, it still finds a place in botanic gardens, and may be purchased in some nurseries. Price, in London, 1*s.* 6*d.* a plant, and 6*d.* a packet of seeds; at Bolwyller, 3 francs a plant; and in New York, 25 cents a plant, or 2 dollars a quart of seeds.

8. *C.* TRITERNA'TA *Dec.* The triternate-*leaved* Clematis.

Identification. Dec. Prod., 1. p. 6.; Don's Mill., 1. p. 6.
Synonymes. *A*tragène triternàta *Desf. Hort. Par.*

Spec. Char. Leaves biternate or triternate, smoothish; leaflets oval, cuneated, three-nerved, acutely trifid. (*Don's Mill.*, i. p. 6.) Flowers white? 1806 Height 5 ft.

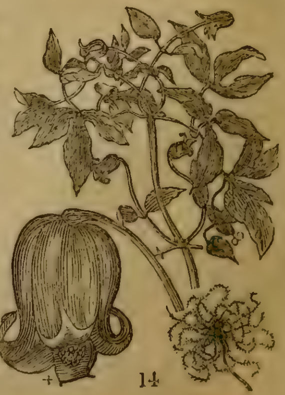
Description, History, &c. It does not appear that this species has yet flowered in Europe; and hence it cannot be positively determined whether it is a *C*lématis, or an *A*tragène. De Candolle appears to have seen a living plant in the Paris Garden; and he notices that it had not there flowered; which is the case, also, with the plant in the garden of the London Horticultural Society. It is a low feeble-growing plant, and might almost be considered as herbaceous.

9. *C.* VIO'RNA *L.* The road-ornamenting Clematis, *or leathery-flowered Virgin's Bower.*

Identification. Lin. Sp., 765.; Mill. Dict., No. 10.; W. Sp., 2. p. 1288.; Lam. Dict., 2. p. 44., and Michx. Fl. Bor. Amer., 1. p. 318.; Pursh Fl. Bor. Amer., 2. p. 385.; Jacq. f. Ecl., 1. p. 50.; N. Duh. Dec. Prod., 1. p. 7.; Don's Mill., 1. p. 8.
Synonymes. *C.* purpùrea rèpens *Ray*; Flámmula scándens, flore violaceo clauso, *Dill. Elth.*; American Traveller's Joy; the Virginian Climber; the purple Climber; Clematite Viorne, *Fr.*; Glockenblüthige Waldrebe, *Ger.*
Derivation. The derivation of Viorna has been already given under *C.* Vitàlba. Leathery-flowered virgin's bower refers to the remarkably thick texture of the sepals; the German name is a translation of Viórna.
Engravings. Dill. Elth., 118. f. 144.; Jacq. fil. Ecl., 1. t. 32., and our *fig.* 14.

Spec. Char. Peduncles 1-flowered. Sepals connivent, thick, acuminated, reflexed at the apex. Leaves smooth, pinnate; leaflets entire, 3-lobed, alternate, ovate, acute, floral ones entire. (*Don's Mill.*, i. p. 8.) Flowers purple without, and yellow within. June to August. 1730. Height 12 ft.
Variety. C. *Síms*ii is, in all probability, only a variety of this species, as may be possibly, also, *C.* reticulàta.

Description, &c. This species is striking in the dissimilarity of its flowers to those of most other species. They may be compared to large pendulous acorns; but the terminal parts of the sepals are curled upward from the terminal part of the acorns, and towards its sides. The species is (in suitable soil) of vigorous growth, and, exclusive of its flowers, assimilates to *C.* Viticélla; but its stems and branches are less decidedly ligneous. De Candolle has cited from Barton, that the herb of this species (by which, perhaps, is to be understood the growing parts of it) is intensely acrid. The stems are numerous, slender, and round; the peduncles of the flower are long, deflexed towards the tip, rendering the flowers pendulous, the sepals never open, except at their extreme ends, which are bent back, giving the whole flower a bell shape, but with the mouth of the bell narrower than the body. The sepals are of a greenish purple, or reddish lilac, on the outside, and of a very pale green within. The stamens scarcely emerge from the sepals. The carpels are broad and flat; as they ripen, the tail becomes bent in and plumose, and of a brownish-green colour.



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Geography, History, &c. Found in North America, on woody hills in Carolina and Virginia. It was sent to England by Banister, from the latter country, in 1680, and was cultivated by Sherard in 1732; afterwards by Miller; and it is now to be found in the principal botanic gardens, and in many nurseries. As it does not grow to a great height (seldom exceeding 10 ft.), it is most ornamental as a single plant, trained to a rod or to a wire frame. As its branches are not very decidedly ligneous or persistent, but consist mostly of annual shoots from a suffruticose base, and are not much branched, the plant does not exhibit a bushy head. As ligneous branches do not abound to facilitate the propagation of it by layers, seeds are the readier means, and these are sometimes plentifully produced, and grow without difficulty. The sowing of them as soon as ripe is advantageous to their vegetating in the ensuing spring. A plant of this species, with shoots reaching to the height of 10 ft., and studded with its pendulous peculiarly formed flowers (peculiar for a clematis), more or less projected on their rather rigid peduncles, is an interesting object. Plants, in the London nurseries, cost 1*s*. 6*d*.; at Bollwyller, 2 francs; and at New York, 50 cents.

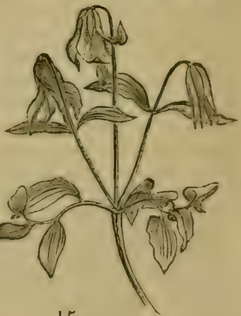
10. *C.* CYLI′NDRICA *Sims.* The cylindrical-*flowered* Clematis.

Identification. Sims, in Bot. Mag., t. 1160.; Ait., in Hort. Kew., 2d edit., 3. p. 343.; Pursh, in Fl. Bor. Amer., 2. p. 385.; Dec. Prod., 1. p. 7.; Don's Mill., 1. p. 8.

Synonymes. C. críspa *Lam., Michx.*; C. Viórna *Andr., in Bot. Rep.*; C. divaricàta *Jacq.*; the long-flowered Virgin's Bower; Clematite à longues Fleurs, *Fr.*

Engravings. Bot. Mag., t. 1160.; Bot. Rep., t. 71.; Jacq. f. Ecl., 1. p. 51. t. 33.; and our *fig.* 15.

Spec. Char. Peduncles 1-flowered. Sepals thin, acuminated, reflexed at the apex, with wavy margins. Leaves slender, pinnate; leaflets stalked, ovate or oblong, middle one sometimes trifid, floral ones entire. (*Don's Miller*, i. p. 8.) Flowers large, pale purplish blue. July, Aug. 1802. Height 4 ft.



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Description. De Candolle has described this in his *Systema* from a dried specimen, and without any acquaintance with it in a living state. He has deemed it related to *C.* Viórna, reticulàta, and críspa, and discriminated it from these. *C.* cylíndrica, he says, differs from *C.* Viórna, in all the segments of its leaves being entire, not usually trifid; in the flowers being blue, and twice the size of those of *C.* Viórna (in this they are of a reddish lilac, pale within); in the sepals being not leathery, but somewhat of the consistence of paper, with the margin waved; the ovaries 12-15, not 25-30. *C.* cylíndrica differs from *C.* reticulàta in its leaves being in consistence papery, not leathery; scarcely veined, not reticulately veined, and in other points. *C.* cylíndrica closely resembles *C.* críspa in habit and mode of flowering, but differs from it in its sepals being waved in the margin, not rolled backwards; in its larger flowers, and especially in its carpels having long bearded tails, and not naked ones. *C.* Viórna and cylíndrica, seen together in a living state, are very dissimilar in appearance. *C.* Viórna has vigorous long branches and reddish flowers, which are acorn-like in figure, except that they have a spreading mouth; there is also obvious dissimilarity in the foliage and shoots, *C.* cylíndrica being almost herbaceous.

Geography, History, Use, &c. Found in North America, in Pennsylvania, Carolina, and Virginia. It was discovered by Michaux, and by him sent to Europe, where it may be found in several botanic gardens, and in some nurseries. Plants, in London, cost 2*s*. 6*d*. each; at Bollwyller, ?; and at New York, 50 cents.

‡ 11. *C.* S*I*′MS*II* Swt. Sims's Clematis.

Identification. Sweet's Hort. Brit., p. 1.; Don's Mill., 1. p. 8.
Synonymes. C. cordàta *Sims*; the heart-shape-leaved Clematis.
Engravings. Bot. Mag., 1816., and our *fig.* 16.

Spec. Char. Peduncles 1-flowered. Leaves pinnate; leaflets cordate, acuminated, entire, ciliated, reticulated. Sepals 4, coriaceous, connivent, lanceolate, reflexed at the apex, curled. (*Don's Mill.*, i. p. 8.) Flowers lilac. June, August. 1812. Height 8 ft.

Description. The general appearance of this plant is said to give the idea of something between *C.* críspa and *C.* Viórna; and it is said also to bear some resemblance to *C.* reticulàta.

Geography, History, &c. It is found in Georgia and Carolina, and was first brought to England in 1812, probably by Lyon, who made a large importation of plants in that year. It appears to have flowered for the first time in England, in Colvill's Nursery, in 1822, whence it was figured by Watson. It is now to be met with in very few collections.

‡ 12. *C.* RETICULA`TA *Walt.* The net-veined-*leaved* Clematis.

Identification. Walt. Fl. Car., 156.; Gmel. Syst., 873.; Michx. Fl. Bor. Am., 1. p. 318.; Pursh Fl. Bor. Amer., 2. p. 385.; Dec. Prod., 1. p. 7.; Don's Mill., 1. p. 8.
Synonymes. C. ròsea *Abbott*; the netted Virgin's Bower; the reticulated Clematis.
Engravings. Dend. Brit., t. 72.; and our *fig.* 17.

Spec. Char. Peduncles 1-flowered. Sepals connivent. Leaves coriaceous, netted with nerves, smooth, pinnate; leaflets stalked, 3-lobed or entire, ovate. (*Don's Mill.*, i. p. 8.) Sepals, when expanded, divaricate, and are of a pale purplish red. June, July. 1812. Height 8 ft.

Description. In Don's *Mill.*, the flower of this species is stated to resemble that of *C.* Viórna; but, by the figure in Watson's *Dendr.*, it is quite dissimilar. In *C.* Viórna the sepals do not divaricate, except in their recurved tips: *C.* reticulàta is depicted with sepals expanded in the mode of those of *C.* Viticélla. A side view of a flower less expanded resembles more the flower of *C.* cylíndrica, but the cylindrical portion is shorter. The flowers (sepals) of the two are different in colour. The reticulation of the veins, in the leaves of *C.* reticulàta, is the character expressed in the specific epithet. The stems of *C.* reticulàta are not truly ligneous. In the new edition of the *Bot. Mag.*, edited by Dr. Hooker, and published in 1833, *C.* Síms*ii* and *C.* reticulàta are made synonymous.

§ ii. *Viticélla* Dec.

Derivation. From *viticula*, a small vine; on account of the plants climbing like the *Vitis vinífera L.*

Sect. Char. Involucre wanting. Tail of the pericarp (that is, of the carpel) short, beardless. Leaves ternate, or decompound.—Stems climbing. (*Don's Mill.*, i. p. 9.) Deciduous.

‡ 13. *C.* FLO′RIDA *Thun.* The florid, *or showy-flowered*, Clematis.

Identification. Thunb. Fl. Jap., 240.; Jacq. Hort. Schön., 3. p. 57.; Dec. Prod., 1. 8.; Don's Mill., 1. p. 9.
Synonymes. Atrágene índica *Desf.*; Atrágene flórida *Pers.*; Clematite à grandes Fleurs, *Fr.*; grossblüthige Waldrebe, *Ger.*
Engravings. Sims's Bot. Mag., t. 834.; Andr. Bot. Rep., t. 402.; Jacq. Hort. Schön., 3. t. 357.; and our *fig.* 18.

Spec. Char. Peduncles 1-flowered, longer than the leaves. Leaves ternately decompound; leaflets ovate, acute, quite entire. Sepals oval-lanceolate, much pointed. (*Don's Mill.*, i. p. 9.) Flowers white. April to September. 1776. Height 15 ft.

Variety. C. *f. flòre plèno*, *the double-flowered florid Clematis* (*Don's Mill.*, i. p. 9.), is comparatively common in British gardens. It is very handsome, but is not thought so ornamental as the single-flowered variety.

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Description. The stem is slender and striated; climbing to the height of 15 feet or upwards where it is trained to a wall with a favourable exposure. It never, however, becomes very woody. The flowers are large, and very handsome either in a single or double state. This species deserves to be recommended for the great size of its greenish-white flowers, especially when they are not double, and the neatness of its foliage. In addition to this, the slenderness of its stems and branches gives such an air of elegance to it, that no lover of plants for their beauty of appearance should be without it, who has a situation in which it will thrive.

Geography. Found in Japan, and introduced into England, about 1776, by Dr. Fothergill. North of London it requires a warm situation; and in Scotland, as well as in France and Germany, it is generally kept in the green-house. The best situation for this species is against either a north or south wall; and, where plants can be trained against both, the flowering season will, of course, be continued much longer than if they were planted against one only. In the sunny site, a loamy soil will be best; but, in the northern, heath mould, that is not in a condensed condition, will be most congenial. A mode of pruning plants of this species, by cutting them down to the ground annually, though not generally practised, is said to produce vigorous shoots and fine flowers. This species, in England, seldom ripens seeds, and is therefore generally propagated by layers. Plants, in London, cost 1*s.* 6*d.* each; at Bollwyller, ?; and at New York, ?.

‡ 14. *C.* VITICE'LLA *L.* The Vine-bower Clematis.

Identification. Lin. Sp., 762.; Dumont, 4. 422.; Dec. Prod., 1. p. 9.; Don's Mill., 1. p. 9.
Synonymes. Viticélla deltöidea *Moench*; the red-flowered Lady's Bower, *Gerard*; Italienische Waldrebe, *Ger.*
Engravings. Flor. Græc., t. 516.; Curt. Bot. Mag., t. 565.; E. of Pl, 7971.; and our *fig.* 19.

Spec. Char. Peduncles 1-flowered, longer than the leaves. Leaves ternately decompound, lobes or leaflets entire. Sepals obovate, spreading. (*Don's Mill.*, i. p. 9.) Flowers blue or purple. June to September. 1569. Height 15 ft.

Varieties and their Synonymes.

‡ C. *V.* 1 *cærùlea.* *The blue*-flowered *Vine-bower Clematis.*

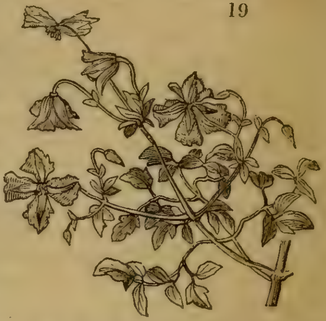
‡ C. *V.* 2 *purpùrea.* *The purple*-flowered *Vine-bower Clematis.*

‡ C. *V.* 3 *múltiplex* G. Don. *The double*-flowered *Vine-bower Clematis.* — Flowers double, blue. *C.* pulchélla *Pers.* This variety produces more robust, more extended, and fewer shoots than the single-flowered blue or purple varieties; and there is a degree of dissimilarity about it, which might lead distinguishers on minute differences to regard it as of a species distinct from *C.* Viticélla: it is probable that this dissimilarity was the ground of Persoon's naming it *C.* pulchélla.

‡ C. *V.* 4 *tenuifòlia* Dec. *The slender-leafleted Vine-bower Clematis.* — Leaflets oblong-lanceolate. *C.* tenuifòlia lusitánica *Tourn.*

‡ C. *V.* 5 *baccàta* Dec. *The berried*-fruited *Vine-bower Clematis.*

Description. The stem rises to the height of 10 ft. or 15 ft.; the leaves branch out into many divisions, and the flowers are supported on long slender peduncles, which render them more obvious; and, as in the case of all the large-flowered species of *Clématis*, are most favourably seen when they are somewhat above the eye. The double-flowered variety is produced by the change of stamens into petals. The single flowers have no petals, but only sepals. *C.* Viticélla, and all its varieties, are tolerably robust and vigorous in their growth, and decidedly ligneous; though plants individually do not endure many years, probably owing to their exhausting the soil in which they grow. Perhaps no mode of disposing plants of this species, for enjoying the effect of their flowers, is preferable to that of planting them so that their branches may be trained over a frame or fence of trellis-work, with both sides free; in which case the clematis will grow and spread so rapidly as to render the fence or hedge in a short time quite a wall of green.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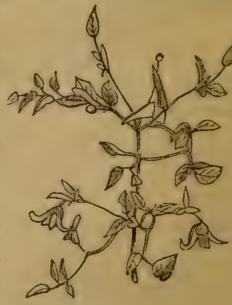
Geography, History, &c. Found in the south of Europe, in hedges and among bushes, particularly in Spain, Portugal, Carniola, &c. It was cultivated in England in 1569, by Mr. Hugh Morgan, being one of the earliest introduced plants on record. This species is perhaps the most beautiful and most estimable of all the kinds of clematis, for the purposes of floral decoration. For the mere covering of bowers and other objects, it is less suited than *C.* Vitálba, virginiàna, or perhaps even Flámmula, as they grow faster, extend farther, and each yields a greater aggregate of herbage, and so covers better: but none of them can vie with *C.* Viticélla and its varieties in beauty; more especially with the single purple and the single blue. The size of the flowers; their being projected on peduncles just long enough to make them obvious beyond the foliage; their being numerous; their conspicuous colour, and their transparency, render their effect extremely beautiful, especially when seen in masses with the sun shining behind them. *C.* Viticélla is more generally cultivated than any of the other species, and may be purchased in all the principal nurseries of Europe. The price, in London, is 25*s.* a hundred for all the varieties, except the double purple, which is 75*s.* a hundred; at Bollwyller the species is 80 cents, and the double-flowered variety 2 francs 50 cents; and in New York, ?.

⚘ 15. *C.* CAMPANIFLO`RA *Brot.* The bell-flowered Clematis.

Identification. Brot. Flor. Lus., 3. p. 352.; Dec. Prod., 1. p. 9.; Don's Mill., 1. p. 9.; D. Don. in Sw. Br. Fl.-Gard., 2. s. 217.
Synonymes. *C.* viornöides, received at the Chelsea Botanic Garden by this name from the Berlin Botanic Garden (*D. Don, in Sw. Fl.-Gard.*, 2d ser., t. 217.); *C.* viornöides *Schrader, Hort. Brit.*, No. 28757.; *C.* parviflòra *Dec.*, according to Sweet.
Engravings. Lod. Bot. Cab., 987.; Sw. Br. Fl.-Gard., 2d series, t. 217.; and our *fig.* 20.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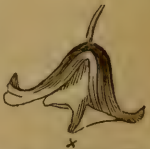
Spec. Char. Peduncles 1-flowered, somewhat longer than the leaves. Leaves biternately decompound; leaflets entire, or 3-lobed. Sepals half spreading, dilated at the apex, wavy. (*Don's Mill.*, i. p. 9.) Portugal. Flowers white tinged with purple. June and July. 1810. Height 10 ft.



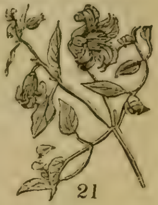
Description. The habit of growth of this plant is entirely that of *C.* Viticélla, to which it also comes nearest in affinity; but the much smaller flowers, and pointed sepals connivent below, will readily distinguish it. (*Sw. Br. Fl.-Gard.*, 2d series, t. 217.) De Candolle states that this is an intermediate species between *C.* Viticélla and *C.* críspa.

Geography, &c. Found in Portugal in hedges, more especially on the road from Coimbra to Oporto. It appears to have been cultivated in England since 1810. It is a free grower and flowerer, though not so ornamental as *C.* Viticélla. It is in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges. Price, in London, 1*s.* 6*d.*; at Bollwyller, 1 franc 50 cents; at New York, ?.

⊥ 16. *C.* CRI'SPA *L.* The curled-*sepaled* Clematis.

Identification. Lin. Sp., 765.; Dec. Prod., 1. p. 9.; Don's Mill., 1. p. 9.; Thunb. Fl. Jap., 239.
Synonyme. *C.* flòre críspo *Dil. Elth.*
Engravings. Dil. Elth., 1. t. 73. fig. 84.; Bot. Mag., 1982.; E. of Pl., 7975.; and our *fig.* 21.

Spec. Char. Peduncles 1-flowered, shorter than the leaves. Leaves entire, 3-lobed, or ternate, very acute. Sepals connivent at the base, but reflexed and spreading at the apex. (*Don's Mill.*, i. p. 9.) North America. Flowers purple. July to September. 1726. Height 3 ft.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Description. The flowers of this species are pretty, but perhaps never produced in sufficient quantity to render it highly decorative; though it is very interesting, both in its foliage and in its flowers. The flower is of a pale purple colour; the sepals having their bases approximated so as to form a tube, and their tips spread or reflexed; these are also wavedly crisped with transverse wrinkles. The stems are weak, and do not generally rise higher than 3 ft. or 4 ft.

Geography. Found in Virginia and Carolina, in hedges and among bushes on the banks of rivers. It is also said to be a native of Florida and of Japan. It was cultivated by Miller in 1726, and in the Eltham Garden about the same time. The plants frequently die down to the ground, so that they require to be treated more as herbaceous than ligneous. The species is in most botanic gardens, and in some nurseries. Price, in London, ? 3*s.* 6*d.*; at Bollwyller, ?; and in New York, 25 cents.

§ iii. *Cheirópsis* Dec.

Derivation. From *cheir*, the hand, and *opsis*, resemblance; in allusion to the form of the bracteas.

Sect. Char. Involucre in the form of a calyx, from two joined bracteas situated at the top of the peduncle just under the flower. Tails of pericarps bearded.—Climbing or rambling shrubs, with simple or ternate leaves. (*Don's Mill.*, i. p. 9.) The old petioles persistent, and the new leaves and the peduncles produced in clusters from the axils of these. (*Dec. Syst.*, i. 162.) Evergreen.

ℒ 17. *C.* CIRRHO'SA *L.* The tendriled-*petioled* Clematis.

Identification. Lin. Sp., 766.; Willd. Sp., 2. 1827.; Lamarck Dict. Ency., 2. 43.; Dec. Prod., 1. p. 9.; Don's Mill., 1. p. 9.
Synonymes. Atrágene cirrhòsa *Pers. Syn.*, 2. p. 98.; Traveller's Joy of Candia, and Spanish Traveller's Joy, *Johnson's Gerard*; Spanish wild Climber *Parkinson*; the evergreen clematis; Clematite à Vrilles, Clematite toujours verte (*Bon Jard.*), *Fr.*; einfachblättrige (simple-leaved) Waldrebe, *Ger.*
Derivations. The word cirrhòsa, which means cirrhose, or tendriled, is applied to this species from the peculiarly grasping and tendril-like action of its petioles, which retain their hold even after the leaflets have fallen. The French word Vrilles signifies tendrils; and the German word einfach alludes to its comparatively simple leaves.
Engravings. *C.* cirrhòsa *L.*, Smith's Flor.-Gr., 517.; *C.* c. 2 pedicellàta *Dec.*, Bot. Mag., t. 1070.; and our *fig.* 22.

Spec. Char. Peduncles 1-flowered, with an involucre. Leaves ovate, somewhat cordate, toothed, in fascicles. (*Don's Mill.*, i. p. 9.) Evergreen. Flowers whitish. March, April. 1596. Height 10 ft.

Variety and its Synonymes.

ℒ *C. c.* 2 *pedicellàta* Dec. *Pediceled*-flowered *tendriled Clematis.*—The chief feature distinctive of this variety from *C.* cirrhòsa is, that the pedicel between the involucre and the flower is of some length, and causes the flower to seem pedicellated beyond the point of the place of the involucre. *C.* baleárica *Pers.*; *C.* pedicellàta *Swt. Hort. Brit.*, p. 2., *Don's Mill.*, 1. p. 9.; *C.* cirrhòsa *Sims, Bot. Mag.*, t. 1070.

Description. An elegant evergreen climbing shrub, rising to the height of 8 ft. or 10 ft., and branching freely, so as to become, in two or three years, a very thick bushy plant. The leaves vary from simple to ternate; and, from being entire to being deeply cut. The flowers appear at the end of December, or the beginning of January, and continue till the middle or end of April. They are pendulous and bell-shaped, the mouth being of the breadth of a shilling, or more. Their colour is greenish white, with some purple on the inside. The sepals are downy without, and smooth within. The principal beauties of this species consist in its bright evergreen verdure, and earliness of its flowering in spring; and they may be best obtained by training it against a wall with a southern aspect.

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Geography, History, &c. Found in the south of Europe and north of Africa, in hedges and among bushes, particularly in Spain, Majorca, Sicily, Calabria, Algiers, and the islands of the Archipelago. In its native country it is said to climb up and overwhelm the trees; but in England it is a weak plant, not very readily kept. In Loddiges's Nursery it is cultivated in pots and kept in a green-house, or in a cold frame. Miller observes that it stood in the Chelsea Botanic Garden, in the open air, in a dry sheltered situation; and that it flowers better when so treated, than if kept in a house. It is liable to perish, however, in exposed situations. It was first discovered by Clusius in 1565, and is said to have been cultivated by Gerard in 1596; though, as he says that he found it wild in the Isle of Wight and near Waltham Abbey, it was probably some less tender species which he designates by this name. It is not often met with, except in botanic gardens. In Scotland, and in France and Germany, it is kept in the green-house. In London, it costs 1*s.* 6*d.*; at Bollwyller, ?; and at New York, 25 cents a plant.

£ 18. *C.* BALEA'RICA *Rich.* The Minorca Clematis.

Identification. Rich. in Jour. Phys., Feb. 1779, 127.; Lamarck's Dict. Ency., 2. p. 43.; Dec. Prod., 1. p. 9.; Don's Mill., 1. p. 9.
Synonymes. *C.* calycìna *Ait. Hort. Kew.*, ed. 1. vol. 2. p. 98.; Clematite de Mahon, *Fr.*
Engraving. Sims, Bot. Mag., t. 959.

Spec. Char. Peduncles 1-flowered, with an involucre under the flower. Leaves ternate; leaflets stalked, 3-lobed, deeply toothed. (*Don's Mill.*, i. p. 9.) Evergreen. Flowers whitish. Feb. and March. 1783. Height 10 ft.

Description. Evergreen, and decidedly ligneous; perhaps rather tender. It attains the height of 10 ft. at least; and is pleasing in appearance, both as regards its leaves and flowers. The leaves have their segments narrow, and toothed and lobed, so that they possess fulness of character. The calyxes are larger than those of *C.* cirrhòsa; the sepals are whitish, and marked in the inside with a few blotches, not regularly disposed; and, although the flowers are not very showy, they are produced at a season which renders them very grateful. This species, in the green-house, will yield flowers throughout the winter.

Geography, History, &c. Found in Minorca, and first described by L'Héritier. The plant was brought to England by M. Thouin in 1783; and, after being cultivated in the garden at Kew, it found its way into most of the other botanic gardens, and into some nurseries. It is easily propagated by layers or cuttings; and, when finally planted out, it is the better for having the protection of a wall. North of York, it may be considered a frame or green-house plant, which it is in France and Germany. It is hardy about London, and in the botanic garden of Cambridge.

§ iv. A*nemoniflòra.*

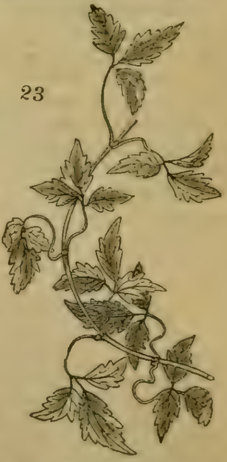
Derivation. From the flowers being like those of the *A*nemòne sylvéstris *L.*

Sect. Char. Peduncles axillary, 1-flowered, aggregate, not bearing an involucre. Carpel with a feathery tail. Leaves deciduous.

19. *C.* MONTA`NA *Ham.* The Mountain Clematis.

Identification. *C.* montàna *Ham. MSS.*; Dec. Prod., 1. p. 9.; Wall. Pl. As. Rar., 3. p. 12.; Royle, Illustr. Bot. Himalaya, p. 51.
Synonymes. *C. a*nemoniflòra *D. Don*; *Prod. Fl. Nepal.*, p. 192.; *G. Don's Mill.*, 1. p. 9.
Engraving. Wall. Pl. Asiat. Rar., 3. p. 12. t. 217.; Swt. Br. Fl.-Gard., 2. s. t. 253.; and our *figs.* 23. and 24. *Fig.* 23. is from the plant in the Hort. Soc. Garden, and *fig.* 24. from a specimen of that at Montreal, Kent.

Spec. Char. Peduncles 1-flowered, not bracteated, several together. Leaves ternately parted, the segments ovate-oblong, acuminate, toothed, the teeth in the mode of incisions. Sepals elliptic-oblong, mucronulate, spreading. Himalayan Mountains (*D. Don*, in *Sw. Br. Fl.-Gard.*, 2d series, t. 253.) Flowers white. May, in England. 1831. Height 15 ft.



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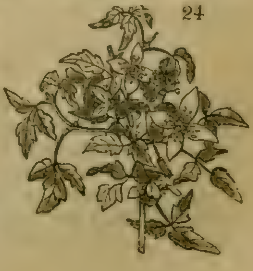
Description. A highly ornamental species. The plant is large and branching; the bark thick, ash-coloured, and deciduous. Leaves several together, upon footstalks 1 in. long; their segments, or leafy parts, pale green. Flowers numerous, about the size and form of those of *A*nemòne sylvéstris *L.*, borne several together, each upon a separate, upright, slender peduncle, about 3 in. long. Sepals 4, 1 in. long, pure white, faintly stained with pink outside at the base. Styles clothed with long white silky hairs; from which it may be inferred that this species will have its fruits terminated with feathery tails, in a state of maturity.

Geography, History, &c. Its native localities are given by Mr. Royle, in his *Illustrations of the Natural History of the Himalayan Mountains*, as "Mussooree, and every where in the Himalayan Mountains, between 5000 ft. and 7000 ft. of elevation" above the level of the sea, where it flowers in April. In the climate of England, Mr. D. Don has stated that it "proves to be quite hardy, and seems to flourish as well as on its native mountains." He received flowering specimens of it in May, 1834, from Montreal, Kent, the seat of Earl Amherst. Dr. Buchanan, whose name was afterwards changed to Hamilton, originally collected specimens of this species at Chitlong, in the valley of Nepal; and from specimens derived from him, in Mr. Lambert's herbarium, it was first described by De Candolle in his *Systema*, vol. i., published in 1818. Plants were soon afterwards raised from seeds in the garden of the



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London Horticultural Society, where one plant, on a wall exposed to the east, grows vigorously without any protection, and flowers freely in warm summers. On the whole, it is a very desirable species. It grows best in "a loamy soil, and is readily multiplied by layers." (*D. Don.*)

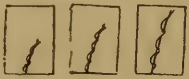
App. i. *Doubtful Species of* Clématis.

In Sweet's *Hort. Brit.* are enumerated C. *terniflòra* Dec., said to be introduced (from what country is uncertain) in 1826; C. *biternàta* Dec., from Japan, in 1825; C. *dahùrica* Dec., from Dahuria, in 1822; C. *diversifòlia* Dec., of uncertain origin; C. *japónica* Dec., from Japan, in 1826; C. *semitríloba* Dec., from Spain, in what year is uncertain; C. *viornöìdes* Jac. (which we have considered as a synonyme of *C.* campaniflòra), in 1826. These species, or names, will be found followed by specific characters in De Candolle's *Prodromus*, and in Don's *Miller;* but, as they are not now to be met with in the gardens about London, we have deemed it not advisable to occupy our pages by describing them.

App. ii. *Anticipated Introductions.*

On recurring to the lists in the historical part of this work, and comparing the names there given with those of the species described in the foregoing pages, it will be found that we are already in possession of all the species of *C*lématis which are considered to be natives of Europe. Of those of Asia, C. *nepalénsis*, *pubéscens*, *vitifòlia*, and *Buchanan*iàna, according to the list in p. 173., may be expected from the Himalaya. From China, C. *intricàta* (mentioned p. 176.) may be expected; and, from North America, there are the names C. *holosericea*, *Wálter*i, and *Catesby*àna, which are not in our *Catalogues* as already introduced. There are probably other species in the mountainous regions of Asia, and in China, which will endure the open air in England; and, as the seeds of the genus are light, not bulky, and very tenacious of life, the probability of their growth will amply repay travellers for the trouble of collecting them.

GENUS II.



*A*TRA'GENE *L.* THE ATRAGENE. *Lin. Syst.* Polyándria Polygýnia.

Identification. Lin. Gen., p. 615.; Willd. Baum., p. 45.; Dumont, 4. p. 426.; Hayne Dend., 118.; Don's Mill., 1. p. 10.
Synonymes. *C*lématis *Lam.* and *Dec.*; Atragene, *Fr.* and *Ger.*
Derivation. The name of *A*trágene appears to be taken from two Greeks words; *athros*, pressed, and *genos*, birth; alluding, as it is supposed, to the manner in which the branches press against or clasp the trees that support them. It was first used by Theophrastus, and was by him applied to *C*lématis Vitálba *L.*

Gen. Char. *Involucre* none. *Sepals* 4, somewhat induplicate in the bud. *Petals* numerous, shorter than the sepals. *Cariopsides* (carpels) terminated by a bearded tail. *Cotyledons* approximate in the seed. — Climbing deciduous shrubs, with variously cut opposite leaves. (*Don's Mill.*, i. p. 10.) Perhaps no genus was ever distinguished from another on slighter differences than those extant between *C*lématis and *A*trágene. These are, the presence of petals in the flowers of the latter genus; though this is scarcely the case in *A.* ochoténsis; and, in the double-flowered variety of *C.* Viticélla, the metamorphosed stamens, which give the flower its fulness, are considered to be petals. Hence De Candolle regards the different species of *A*trágene only as a section of the genus *C*lématis (§ iv. *A*trágene, *Prod.*, i. p. 9.); but, as the genus is retained in Don's *Miller*, and is current among British and German cultivators, we have thought it best to preserve it. On the same principle (that of simplification), we prefer retaining the genera Mahòn*ia*, *S*órbus, *M*àlus, *A*'bies, *L*àrix, *C*èdrus, and others; though, in a strictly scientific point of view, they may not be valid.

Description. The atragenes differ from the clematises in producing leaves and one flower from the bud contemporaneously; whereas in most clematises the flowers are produced upon wood developed previously to their appearance, and during the same season. Hence the winter buds of *A*trágene are larger than those of *C*lématis, from their including the flower as well as the leaves of the year succeeding. In atragenes the leaves are less divided than in many of the species of *C*lématis, and they are always divided ternately. All the species of *A*trágene described in this work have petioles which not only clasp objects like those of *C*lématis, but maintain the prehension effected for more than the season, like the vine. All the species are extremely interesting from the beauty of their blossoms.

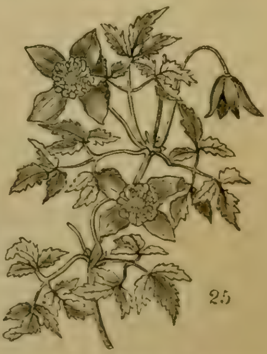
Geography, History, &c. The hardy species are found in the south of Europe, one in Siberia, and one in North America. They are not numerous; and it appears to us doubtful, whether, in reality, more than two hardy species have been yet discovered. This genus is comparatively of recent introduction into British gardens; but, as it is ornamental, plants of it may be procured in most nurseries. The culture is the same as in *C*lématis, and generally by layers.

1. *A*TRA'GENE ALPI'NA *L.* The Alpine Atragene.

Identification. Lin. Sp., 764.; Willd. Baum., 45.; Dumont, p. 426.; Hayne Den., p. 116.; Don's Mill., 1. p. 10.
Synonymes. Clématis cærùlea *Bauh.*; *A*trágene austrìaca *Scop.* and *Bot. Mag.*; *A*trágene clematìdes *Crantz*; Clématis alpìna *Mill. Dict.*, No. 9.; *C.* alpìna *Dec. Prod.*, 1. p. 10.; Atragène des Alpes, *Fr.*; Alpen Atragene, *Ger.*
Engravings. Bot. Rep., t. 180.; Bot. Mag., t. 530.; and our *fig.* 25.

Spec. Char. Peduncles 1-flowered, longer than the leaves. Leaves biternate; leaflets ovate-lanceolate, acuminated, serrate. Petals somewhat spathulate, blunt. (*Don's Mill.*, i. p. 10.) Austria. Flowers blue. May to July. 1792. Height 8 ft.
Varieties. De Candolle mentions its varying with white flowers; and *A.* sibírica *Lin.*, described below as a species with yellowish white flowers, appears to us nothing more than a variety of *A.* alpìna.

Description. The stems are numerous, branching, weak, forming knots at the joints where the leaves and flowers are protruded. One flower on a longish scape springs from between the leaves; the sepals are twice the length of the petals, and are blue on both sides. The petals are of a dirty white colour, and, in general, 12 in number.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Geography, History, &c. Native of the mountains of the south of Europe, from the height of 2400 to 6000 feet, especially on a calcareous soil, in Austria, Carniola, Piedmont, Dauphiné, the Eastern Pyrenees, Hungary, &c. It appears to have been first remarked by Allioni and Jacquin, in Switzerland. The species is very ornamental, and is to be had in most nurseries. The price, in London, is 1*s.* 6*d.* a plant; at Bollwyller, ?; and at New York, ?.

2. *A.* SIBI'RICA *L.* The Siberian Atragene.

Identification. Sims, Bot. Mag., t. 1951.; Don's Mill., 1. p. 10.
Synonymes. *A*trágene alpìna *Gmel. Sib.*, 4. p. 194., *Pall. Flor. Ross.*, 2. p. 69.; Clématis sibírica *Mill. Dict.*, No. 12., and *Dec. Prod.*, 1. p. 10.
Engravings. Sims, Bot. Mag., t. 1951.; Pall. Fl. Ross., 2. p. 69. t. 76., and our *fig.* 26.

Spec. Char. Peduncles 1-flowered, almost equal in length with the leaves. Leaves biternate; leaflets oblong-lanceolate, acuminated, serrated. Petals emarginate at the apex. (*Don's Mill.*, i. p. 10.) Siberia. Flowers white. June or July. 1753 Height 12 ft.

Variety. A blue-flowered variety of this species is mentioned, in *Bot. Mag.*, t. 1591.

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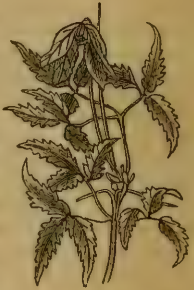

Description. There is a considerable similarity in this to the last, in foliage and habit of growth; but it is less robust and less branchy; its branches are more ligneous-looking, and the segments of the leaves longer. The calyxes of the flower are white, longer, and with the tips rather connivent than spreading. The whiteness of the calyxes seems to be partaken of by the bark and foliage, as these are of a lighter colour than in *A.* alpìna, the calyxes of which are of a blue colour. The flowers of *A.* sibírica are longer than those of *A.* alpìna and perhaps less numerous.

Geography, History, &c. Found in the mountainous districts of Siberia, as far as the Eastern Ocean, covering the shrubs and underwood, much in the same manner as *C*lématis Vitálba does in England. Pallas observes that it flowers profusely in June, and that in autumn it delights the eye with its clusters of white feathery seeds. The plant is not very common in British gardens, and has been chiefly cultivated by Messrs. Loddiges.

⅄ 3. *A.* OCHOTE'NSIS *Pall.* The Ochotskoi Atragene.

Identification. Don's Mill., 1. p. 10.; Sweet's Hort. Brit., p. 2.
Synonymes. *Atrágene violàcea* *Pall.*; *C*lématis ochoténsis *Poir.*; and *Dec. Prod.*, 1. p. 10.

Spec. Char. Peduncles 1-flowered. Leaves biternate; leaflets oblong-lanceolate, acuminated, serrated. Petals few, linear. (*Don's Mill.*) Siberia. Flowers violet. From May to July. 1818. Height 12 ft.

Description. The plant bears a strong resemblance to *A.* sibírica, of which it is probably only a variety. The flowers have four ovate mucronate sepals, which are downy in the margin. Petals none, or sometimes with the outer stamens abortive, a little elongated, and linear. Filaments velvety, a little shorter than the sepals. (*Don's Mill.*, i. p. 10.)

Geography, History, &c. Native of Siberia, towards the Ochotskoi Sea; and of Kamtschatka, between Ochotsk and Kantsch. It appears to have been introduced into England in 1818, but we have not seen it in cultivation.

⅄ 4. *A.* AMERICA'NA *Sims.* The American Atragene.

Identification. Sims, in Bot. Mag., t. 887.; Swt. Hort. Brit.; Don's Mill., 1. p. 10.
Synonyme. *C*lématis verticillàris *Dec. Prod.*, 1. p. 10.
Engravings. Bot. Mag., 887.; E. of Pl., 7965., and our *fig.* 27.

Spec. Char. Peduncles 1-flowered; leaves whorled, in fours, ternate; leaflets stalked, cordate, lanceolate, acuminated, entire or somewhat lobed or serrated. Petals acute. (*Don's Mill.*, i. p. 10.) North America. Flowers purplish blue. May to July. 1797. Height 15 ft.

Variety.

⅄ A. *a.* 2 *oblìqua* Douglas MS. *The oblique American Atragene.*—Leaflets bluntly serrated. (*Don.*)

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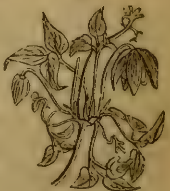

Description. This species is distinguishable from all the other *C*lematídeæ described in this work, by the peculiarity of its leaves being disposed, not oppositely, in alternately decussating pairs, but in whorls of four. This is an anomalous characteristic, which De Candolle has expressed by his specific epithet verticillàris. The flowers are large, of a palish purple, and less showy than those of *A.* alpìna.

Geography, History, &c. Found in North America, in shady places, on the sides of rivulets, climbing and creeping among loose rocks; at New York and in Pennsylvania; near the foot of the Blue Mountains; on the eastern declivity of the Rocky Mountains; and at Cape Mendocina, on the north-west coast. Douglas's variety is found on the eastern declivity of the Rocky Mountains, in valleys; and at Cape Mendocina, on the western coast. The species appears to have been introduced into England in 1797: it is found in some gardens and nurseries. The price, in London, is 1*s.* 6*d.* a plant; at Bollwyller, ?; and at New York, 1 dollar.

♣ 5. *A.* OCCIDENTÀLIS *Horn.* The Western Atragene.

Identification. Sprengel's Syst.; Swt. Hort. Brit.; Don's Mill.
Synonyme. Clématis occidentàlis *Dec. Prod.*, 1. p. 10.

Spec. Char. Leaves opposite, ternate; leaflets nearly entire, shining; sepals ovate-lanceolate; flowers somewhat bell-shaped. (*Don's Mill.*, i. p. 10.) Native country, and colour of the flower, unknown. 1818.

Description, &c. We have never seen this species, nor is any thing stated in books respecting it, further than what we have given above.

Sect. II. *PÆONIÀCEÆ* Dec.

THIS section, or tribe, is the only one contained in De Candolle's second of his two divisions of *R*anunculàceæ, namely, in *R*anunculàceæ spùriæ, and is identical with that division. It is at once distinguishable from the other division, named *R*anunculàceæ vèræ, by the character of the anthers opening to admit the escape of the pollen on the side next the ovaries. In the other, the anthers open on the side outward to the ovaries. De Candolle has questioned (*Prod.*) whether the *R*anunculàceæ spùriæ, or *P*æon*iàceæ*, may not be a proper order. They differ from *C*lematìdeæ in the character named, and, besides, in having the æstivation imbricate, and the carpels from one-seeded to many-seeded. The ligneous species are included in two genera, *P*æòn*ia* and Xanthorhìza, and of the characteristics of these the following are contrasting ones: —

PÆÒNIA L. Sepals 5, persistent. Petals 5 or more, orbicular, without claws. Stamens numerous. Ovaries 2—5, girded by a fleshy disk. Carpels each containing several seeds.

XANTHORHÌZA *L.* Sepals 5, deciduous. Petals 5, truncately 2-lobed, narrowed into a pedicel. Stamens 5—10. Ovaries 5—10, not girded by a fleshy disk. Carpels each containing 1—3 seeds.

GENUS I.

PÆÒNIA L. THE PEONY. *Lin. Syst.* Polyándria Di-Pentagýnia.

Identification. The term *P*æòn*ia* was applied by the Greeks to these plants, which have continued to bear that name ever since.
Synonymes. Peony, Piony; Pivoine, *Fr.*; Gichtterrose, and Päonie, *Ger.*; Rosa del Monte, *Span.*; Peonia, *Ital.*
Derivations. The term *P*æòn*ia* is said to have been given by Hippocrates and Dioscorides, in commemoration of Pæon, the physician who first used it in medicine. Mr. D. Don has stated (*Sw. Br. Fl.-Gard.*, 2d series, 238.) that it is much more probable that it is derived from Pæonia, a mountainous country of Macedonia, where some of the species grow wild. Most of the other European names are mere adaptations of the classical one, except gichtterrose, *Ger.*, which signifies the gouty rose, from the knobby, or gouty, appearance of the roots of the herbaceous species.

Gen. Char. *Calyx* of 5 leafy, unequal, permanent sepals. *Petals* from 5 to 10, somewhat orbicular. *Stamens* numerous. *Disk* fleshy, girding the ovaries. *Carpels* follicular, from 2 to 5, large, many-seeded, terminated with thick bilamellate stigmas. *Seeds* rather globose, shining. *Leaves* biternate or bipinnate. *Flowers* large, rosy, or rosy and white, usually with a strong disagreeable smell. (*Don's Mill.*, i. 65., with adaptation.) Height from 3 ft. to 10 ft.

Description. There is but one ligneous species, *P. Moútan*; but there are several varieties of this: all are undershrubs, which never attain a great height, and the wood of which always retains a herbaceous character, with a large pith. The roots are ramose rather than tuberous.

Geography, History, &c. The ligneous species is found in China and Japan;

in a wild state in the north of China, and on the mountains in the province of Ho-Nan; and it is cultivated in most gardens in both countries. Its first introduction into England was in 1789. The species and varieties are all beautiful; they are in cultivation in first-rate gardens, and are propagated in the principal nurseries of Europe and America.

✿ *P. Mou'tan* Sims. The Moutan, *or Tree*, Peony.

Spec. Char. Segments of leaves oval-oblong, glaucous underneath. Carpels 5, villose. (*Don's Mill.*, i. p. 65.) Height 10 ft.

Identification. Anderson, Linn. Trans.; Dec. Prod., 1. p. 65.; Don's Mill, 1. 65.
Synonymes. Pæònia arbòrea *Don, Hort. Can.*; *P.* suffruticòsa *Bot. Rep.*; Pivoine moutan, and Pivoine en Arbre, *Fr.*; baumartige Gichtterrose, *Ger.*; Hoa-Ouang, and Pé-Leang-Kin, *Chinese.*
Derivations. The word moutan has been applied to this species of peony, in China, for above 1400 years. *P.* arbòrea and *P.* suffruticòsa signify the tree and the sub-shrubby peony. The German name signifies the tree-like gouty rose. The Chinese name Hoa-Ouang signifies the king of flowers, alluding to the beauty of the plant; and Pé-Leang-Kin, a hundred ounces of gold, in allusion to the high price which some of the varieties bear in China.

Varieties and their Distinctions.

✿ P. M. 1 *papaveràcea* Andrews. *The Poppy*-flowered *Moutan Peony.*— Petals from 8 to 13, white, with a purple spot at the base of each. Capsules altogether enclosed in the urceolus, or disk. (*Don's Mill.*, i. p. 65.)

Identification. Andr. Bot. Rep.; Don's. Mill.
Engravings. Andr. Bot. Rep., t. 463.; Lodd. Bot. cab., 547.; Bot. Mag., 2175., and our *fig.* 28.

Introduced in 1806. Mr. D. Don has remarked (*Sw. Br. Fl.-Gar.*, 2d ser., 238.) that the *P. M.* var. *p*apaveràcea appears to be really the normal form of the species, as the late Mr. George Anderson suggested.

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✿ P. M. 2 *variegàta* D. Don. *The particoloured*-petaled *Moutan Peony.* — A low-growing bushy kind, branching from the ground, and scarcely woody. Flowers about 6 in. across. Petals white, stained with a deep rose-colour in various parts; the base marked with numerous radiating streaks of violet and purple. Anthers yellow. The Earl of Mount Norris, whose successful culture of the tree peony has been rewarded by the production of several splendid varieties, far excelling any of those imported from China, has been so fortunate as to raise this fine variety also, which is remarkable for its dwarf and almost herbaceous habit. It was raised from seeds of the *P. M. p*apaveràcea, which the Earl of Mount Norris supposes had been accidentally fertilised by some of the herbaceous species. All the varieties raised at Arley were from *P. M. p*apaveràcea, and not from *P. M.* Bánks*ii*, as the gardener had inadvertently stated. (*D. Don*, in *Sw. Fl.-Gar.*, 2d ser., t. 238.; *G. M.*, vol. x. p. 284.)

✿ P. M. 3 *Bánks*ii *Andrews. Banks's Moutan Peony.* — Flowers double. Petals slightly tinged with blush, becoming nearly white at the edges, marked at the base with purplish red. In the centre of the flower are some elongated petals, which sometimes appear to rise from amongst the germens. (*Don's Mill.*, i. 65) Cultivated in 1794.

Identification. Anders. Lin. Trans.; Don's Mill.
Engravings. Bot. Rep., t. 448.; Bot. Reg., 379.; Bot. Mag., t. 1154.; and our *fig.* 29.

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✿ P. M. 4 *Hùmei Ker.* Sir A. *Hume's Moutan Peony.* — Flowers double. Petals of the same colour as those of *P. M.* Bánks*ii*, with a bunch of long petals rising from the middle of the flower. (*Don's Mill.*, i. p. 63.) Cultivated in Britain as early as 1817.

Engravings. Bot. Reg., 379.

P. M. 5 *ròsea* Dec. *The rosy*-petaled *Moutan Peony.* — Flowers semi-double. Petals rose-coloured. Segments of leaves with very blunt fissures at the apex. (*Don's Mill.*, i. 65.) Petals large, of a very deep pink. Cultivated in 1794.

Identification. Dec. Prod., 1. 65.; Don's. Mill., 1. 65.

This variety is much esteemed, and is at present comparatively high-priced. In *G. M.*, xi. 79., a *P. M.* ròsea *Courtois* is mentioned, which Dr. Courtois of Belgium has stated to be distinct from the variety known in Britain by that name; and, also, that the latter is identical with *P. M.* rùbra *Courtois.*

P. M. 6 *ròsea semiplèna.* *The semidouble rosy*-flowered *Moutan Peony.* — This is described, in our *Hortus Britannicus*, as introduced from China in 1794; as attaining the height of 2 ft., and flowering from April to June; and as having red flowers.

P. M. 7 *ròsea plèna* Hort. Trans. *The double-rosy*-flowered *Moutan Peony.* — Flowers very double, of a fine deep pink, nearly scentless. Petals jagged. (*Don's Mill.*, i. p. 65.) Introduced from China in 1804. It flowers from April to June. (*Hort. Brit.*)

Identification. Hort. Trans., 6. p. 477.
Synonymes. *P.* suffruticòsa *Andr. Bot. Rep.*
Engravings. Andr. Bot. Rep., t. 373.; Bonpl. Pl. Rar., t. 23.

P. M. 8 *Rawèsii* *Hort. Trans.* *Rawes's Moutan Peony.* — Flowers single, pale, slightly tinged with pink. The foliage much resembles that of a herbaceous peony. (*Don's Mill.*, i. 65.) First cultivated in 1820.

Identification. Hort. Trans., 6. 479.; Don Mill., 1. 65.

P. M. 9 *cárnea plèna* Hort. Trans. *The flesh*-coloured *double*-flowered *Moutan Peony.* — Flowers very double, of a delicate purplish pink, with a rich purple rayed spot at the top of each. It is very like *P. M.* var. Bánks*ii*, but has not the central elongated petals of that variety. (*Don's Mill.*, i. 65., with adaptation.)

Identification. Hort. Trans., 6. p. 481.; Don's Mill., 1. 65.

P. M. 10 *álbida plèna* Hort. Trans. *The whitish double*-flowered *Moutan Peony.* — Flowers double, very pale, suffused with purple. (*Don's Mill.*, i. 65.)

Identification. Hort Trans., vol. 6. p. 482.; Don's Mill., 1. p. 65.

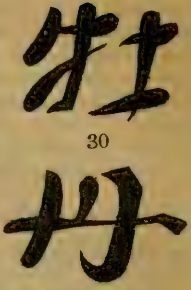
P. M. 11 *Annesléi* *Hort. Trans.* *Annesley's* (the family name of the Earl of Mount Norris) *Moutan Peony.*—Flowers small, almost single, of a rich purplish pink. Petals usually 9, obcordate, slightly jagged at the margins, of a darker colour at their bases. (*Don's Mill.*, i. 65.)

Identification. Hort. Trans., 6. p. 482.; Don's Mill., 1. 65.
Engravings. Hort. Trans., 6. t. 7.

P. M. 12 *lácera* Lindl. *The cut*-petaled *Moutan Peony.* — This very beautiful variety is strikingly different from the others in the bright rosy red of the petals, the innermost of which are very much cut and gashed, curled up, and distinctly bordered with a narrow edge of light carmine, which sets them off to great advantage, and gives the whole flower a peculiarly rich and finished appearance. Raised in 1831, from seed, by Mr. William Hyland, gardener to the Earl of Sandwich, at Hinchingbrook, near Huntingdon. (*Bot. Reg.*, July, 1835; *Gard. Mag.*, vol. xi. p. 418.)

Engraving. Bot. Reg., 1771.

Expected Varieties. Those mentioned under *P. M.* 2 variegàta, above, as raised by the Earl of Mount Norris. — *A yellow-flowered variety* is mentioned by Mr. Main (*G. M.*, ii. p. 423.), as having been imported by Gilbert Slater Esq., in 1794, and which died. — The Chinese pretend to have a *black-flowered variety*, and a *double blue* one, which is only possessed by the emperor, and which is said to have from 100 to 1000 petals.—It is recommended to those who wish to import plants from Canton, to furnish themselves with good Chinese drawings of the varieties they wish to obtain; and to send these to an agent or collector. Mr. Main also recommends adding to the drawing the Chinese character for the variety, if it can be procured. The word moutan is written in Chinese as in *fig.* 30.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Description. The *Pæònia Moútan,* in a sheltered situation, will attain the height of from 6 ft. to 10 ft. in ten years; and no plant can be a more gorgeous ornament of the garden than such a bush, abounding as it does in leaves, striking from their branched character and numerous segments, and in very magnificent flowers, of extraordinary size: both leaves and flowers being produced early in the spring.

Geography, History, &c. *P. Moútan* appears to have been first observed by Europeans in the gardens at Canton, where, however, it is neither indigenous nor propagated; but the plants are brought by the commercial gardeners of the provinces of Nan-Kin and Ho-Nan, where it is a native, and sold by them to the merchants and others possessing gardens at Canton. From Chinese drawings, and from the extravagant praises bestowed upon this plant in the *Mémoires sur la Chine,* published by the missionaries, an ardent desire was excited, in Sir Joseph Banks and others, to import plants into England; and, previously to 1786, Sir Joseph Banks engaged Mr. Duncan, a medical gentleman attached to the East India Company's service, to procure a plant for the royal garden at Kew, where it was first received, through Mr. Duncan's exertions, in 1787. (See *Gard. Mag.,*ii. p. 424.) Various plants have since been imported by different individuals, mostly of the common sort (*P. M.* Bánks*ii*), but including also some of the varieties which have been enumerated above. In 1803, the *P. Moútan* was introduced into France, and various other parts of the continent of Europe, having been sent from the Hammersmith Nursery to the garden of Malmaison.

Soil and Situation. On its first importation this plant was grown in sandy peat; but it has since been found to thrive best in deep rich loamy soil. An open situation is preferable, both on account of maturing the wood and leaves, and for displaying the flowers to advantage; but the plant must be sheltered from the north and east, or other cold spring winds, unless it is intended to cover it, when it is in flower, with a movable glass, or canvass, case. The protection given to this plant is necessary, not so much to prevent it from being injured during winter (for it will bear the winters of Paris without any protection, if the wood has been properly ripened), as to protect the tender leaves and flowers when they first appear, in April and May, from being blackened by the frost. Mr. Curtis finds, at Glazenwood in Essex, that by giving the plants no protection whatever, they flower somewhat later than if protected; and this slight retardation, in his part of the country, is sufficient, in most years, to prevent the flowers from being injured by frost. In severe weather, however, when they are in flower, he protects them with poles and mats. (*Curt. Bot. Mag.,* vol. i. p. 26., 1833, new edit.)

Properties and Uses. The whole plant possesses narcotic and poisonous qualities, which are common to the genus. No use, however, is made of the ligneous species, but as an ornamental flowering shrub, as which, it is needless to say, it holds the very first rank.

Propagation and Culture. The Chinese are said to propagate this plant by seeds, in order to procure new varieties; but they also multiply it by parting the roots, and by layers and cuttings; and it is said that "they generally inoculate the buds of different varieties upon the several branches of the same colour. When the time of flowering approaches, they carefully remove all the superfluous buds, in order to strengthen those which they intend to expand; and these they also protect from the scorching heat of the sun." (*Kæmp. Amœn.*

Exoticæ, p. 862.) In Britain the tree peony is propagated by seeds, by division of the root, by grafting, by summer budding, by layers, by cuttings, and by single winter buds.

Seeds. These are occasionally ripened by plants bearing single or semi-double flowers. Mr. Curtis finds that seeds are produced by *P. M.* papaveràcea in abundance. In England, plants were first raised in this way from *P. M.* papaveràcea, at Arley Hall, the seat of the Earl of Mount Norris. They have since been raised at several other places; and, among these, at Glazenwood, where the seeds are sown as soon as gathered in the autumn, and while some of them vegetate in the following spring, many of them remain a year or more before they come up. At Hinchingbrook, it was found that the seeds did not germinate till eighteen months after sowing. (*Bot. Reg.*, 1771.; *Gard. Mag.*, xi. p. 418.)

Division of the Root. This operation is so simple, that it is unnecessary to describe it. When the wounds made are large, it may be advisable to sear them, or to cover them with grafting wax. It is necessary, for the success of each divided portion of the main root, that some fibrous roots should be attached to it when taken off.

Grafting. This operation is performed on the roots of herbaceous peonies, at any time from the beginning of September to the middle of March. Select some good tubers of *P.* officinàlis, or of any other hardy herbaceous kind, and take off cuttings of *P. Moútan* papaveràcea, or any other tree peony that it is desired to increase. Then slit the tuber from the crown downwards about two inches; form the scion like a wedge; insert it into the slit of the tuber, and make the barks fit on one side as exactly as possible; then bind them well together with strands of good bast matting; over which put one turn of brass wire, to prevent the parts from separating after the strands of bast have decayed. Put the tubers into pots deep enough to allow the mould to cover the top of each tuber; set them in a cold frame or pit; keep them close, rather dry, and defended from the sun during the first month, and from frost during winter. When they have perfected one season's growth, turn them out, and treat them like established plants. (*Gard. Mag.*, iii. p. 293.) We are not aware of any ligneous variety of peony having been grafted on any other variety of ligneous peony.

Budding. This mode, it is stated by Kæmpfer, as quoted above, is practised by the Chinese, which is the more remarkable, as grafting is said to have been unknown to that people till lately. We do not doubt its practicability, though we have never seen it tried.

By Layers. These are made of wood of the preceding year's growth, either in autumn or spring; and tongued and pegged firmly under the soil, between 2 in. and 3 in. They will throw down roots the first year; but it is generally found desirable, to let them remain two years before separating them from the stool. When they are taken off, they should be potted, and kept in pots till wanted for final planting.

By Ringing, by Buds, and by Cuttings. The following directions for these modes of propagation are taken from Maund's *Botanic Garden*:—"In February select any of the stems of the *Pæònia Moútan*, or all may be used; and, at the distance of half an inch from the centre of each bud, both above and below it, cut out entirely round the stem a small ring of the bark, rather more than the sixteenth of an inch wide, in the manner of common ringing, as practised on fruit trees. Thus every bud will occupy one inch of the stem, where the direct continuation of the bark is obstructed, both above and below, by the rings which have been cut out of it. The stems, so prepared, are then to be laid horizontally about 3 in. beneath the soil, leaving only the leading bud at the end of each branch above the surface. In six months every bud will have made a vigorous shoot, and, in general, will have two radical fibres at its base. In August, remove the soil from above the layers; and, having raised the newly made roots, carefully separate each young shoot from the main layer, by passing a small knife from one ring to the other, cutting out about one third part of the old stem. The young plants should then be immediately potted, to remain till they are required for planting out in their final situations. After thus gathering the first crop of young plants, the old layers should be again covered with good soil, and, left as before; and, in the following summer, a second and greater crop of plants will be produced than in the first season; and, what is most remarkable, they will issue from various parts of the stem, where no trace of a bud was previously indicated. Again, if a stem be detached from the parent plant, and treated as described above, and then laid in soil in a pine-pit or stove, it will shoot almost as freely as if connected with the original root."

Cuttings. "In another experiment, cuttings of about an inch in length were made of the *Pæònia Moútan,* in the manner of vine cuttings, having one bud on each, and about half of the stem behind the bud slit up, and the pith removed. These were put 3 in. deep in pots of soil, and plunged into an exhausted bark-bed, having a temperature of about 60°. In the space of two months, these cuttings made young shoots through the soil, and grew freely." (*Bot. Gard.*)

Nursery Culture. Stools are planted in the London nurseries, either in cold-pits, or in the open ground, to be slightly protected during winter; and, when these have been two or three years established, they throw up abundance of shoots every year, which are laid down, either with or without the ringing process described above, in autumn, or early in spring, and taken off in about a year or two years afterwards. As the tree peony does not transplant well, from the length of its descending roots, and the paucity of their fibres, plants should always be kept in pots, by which means, instead of suffering from removal, they will be improved by it.

Final Culture. The plant has always the best effect when placed singly on a lawn, or in a border, in such a manner as that it may become an orbicular bush, free on all sides. As it is of slow growth, it requires little or no winter pruning, except for the removal of dead or injured wood; but in spring, it is desirable to thin out the embryo blossoms, as soon as they can be distinguished, so as to leave no more than what the plant can bring to a high degree of perfection; and so as not to injure any part of the embryo foliage. The plant has been tried against a wall; but in such a situation the heat appears too great for it in summer. It succeeds well in a conservatory or in a cold-pit. South of London, and in most parts of Ireland, it thrives perfectly well in the open air; though in the latter country it requires a slight roof to be thrown over it while it is in flower.

Accidents, Diseases, &c. The shoots are liable to be killed back by the winter's frost, especially after a wet summer, when they have not ripened thoroughly. In spring, the leaves and blossoms are liable to be blackened, when the plants are not protected by a slight covering stretched over them horizontally during frosty nights. A piece of thin muslin, canvass bunting, or woollen netting, stretched over a wooden frame, formed like an hood, would be quite sufficient for this purpose, and the trouble of covering the plant would not be great. The bitter quality of the leaves prevents them from being attacked by many insects; though the blossom buds are sometimes punctured by them.

Statistics. One of the largest tree peonies within ten miles of London stood, till lately, in the grounds at Spring Grove, where it was planted by Sir Joseph Banks. It was 6 ft. or 8 ft. high, and formed a bush 8 ft. or 10 ft. in diameter in 1825. South of London, there are equally large plants at Rook's Nest, near Godstone, Surrey, which were planted in 1818. North of London, the largest plant in the country (*P. M. p*apaveràcea) is at the seat of Sir Abraham Hume, at Wormleybury, in Hertfordshire. It is 7 ft. high, and forms a bush 14 ft. in diameter, after having been planted thirty years. It stands the winter, in general, very well; but, if the flower-buds swell too early in February, it becomes advisable to cover the plant slightly with a mat. In the year 1835, this plant perfected 320 flowers; but it has been known to bear three times that number. In most parts of Scotland, the tree peony will grow with protection, and near the sea coast nearly as well as in England. The largest plants are at Hopeton House, and in Dalkeith Park. In Ireland, the plant attains a large size with little or no protection, as will appear by the notice of one 12 ft. high at Lord Ferrard's, already given in p. 109.

Commercial Statistics. Soon after the tree peonies were imported from China, they began to be propagated in the nurseries, and the price was, at first, ten guineas a plant. In 1820 the price had fallen to six guineas, and in 1825 to two guineas. Price in 1836, in London, from 3*s*. 6*d*. to 10*s*.; at Bollwyller, where it is a conservatory plant, from 10 francs to 30 francs; and in New York, ?.

GENUS II.

XANTHORHI'ZA *L.* THE YELLOW ROOT. *Lin. Syst.* Polyándria Mono-Tri-gýnia.

Gen. Char. Calyx of 5 deciduous sepals. *Petals* 5. *Carpels* 2—3-seeded, but usually solitary from abortion. (*Don's Mill.*, i. p. 65.) There is only one species known.

✻ X. APIIFO'LIA *L'Hérit.* The Parsley-leaved Yellow Root.

Identification. Lin. Gen., 1581.; Lam. Ill., 854.; Dec. Prod., 1. p. 65.; Don's Mill., 1. p. 65.
Synonymes. Xanthorhiza apiifòlia; Zanthorise à Feuilles de Persil, *Fr.*; Sellerie-blättrige Gelbwurz, *Ger.*
Derivation. From the Greek words *xanthos*, yellow, and *rhiza*, a root, applied from the deep yellow colour of the roots. The French name needs no explanation; and the German is a literal translation of the English one.
Engravings. Lam. Ill., t. 854.; L'Hér. Stirp. Nov., p. 79. t. 38.; Bot. Mag., 1736.; E. of Pl., 3993.; and our *fig.* 31.

Description. A small shrub with yellow creeping roots, throwing up numerous suckers; with irregularly pinnate leaves, branched racemes, and small purplish flowers, which are usually unisexual from abortion, rising from the scaly buds. (*Don's Mill.*, adapted.) The flowers appear early in May, and continue a month or upwards before they drop off. We have never heard of its ripening seeds in Europe. Nevertheless, this may have often occurred, and been overlooked, from the inconspicuousness of the shrub, and the smallness of its fruit.

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Geography, History, &c. Found on shady banks of rivers from Virginia to Georgia, where it flowers in May. It was first described by L'Héritier, and introduced in England, about 1776, by John Bush. It is so readily propagated by suckers, of which it throws up a great number, that it is in most botanic gardens, though, from having no great show in a shrubbery, it is seldom met with in private collections. To us it appears a plant of very great interest, from the uncommon colour of its elegant panicles of flowers, their early appearance in spring, and the finely divided light green leaves, which succeed them. The plant is of so limited a habit of growth, that under no circumstances do we suppose that it would rise higher than 3 ft. or 4 ft., which height it attains in three or four years; but it spreads by its suckers, which, though they are numerous, do not come up at a great distance from the stem. As the shoots are not liable to be killed by frost, and never require pruning, it forms a desirable bush for a shady moist situation. Its roots afford abundance of deep yellow juice; but they have hitherto not been used in dyeing; probably, because there are already so many plants, which grow more rapidly, that afford a yellow colour. Plants are so seldom asked for in the nurseries, that the name of this shrub is seldom to be found in the catalogues. Price, in London, 1*s*. 6*d*.; at Bollwyller, ?; and in New York, 25 cents.

CHAP. II.

OF THE HARDY LIGNEOUS PLANTS OF THE ORDER WINTERA`*CEÆ*.

This order, which was formerly included in Magnoli*àceæ*, has been separated from it by Mr. Brown. It is named Winter*àceæ*, because the Drìmys Wínter*i* *Forst.*, previously Wíntera aromática *Murr.* (named in honour of Captain Winter, who sailed with Sir Francis Drake), is the type of the order. The diagnostics are, calyx of 2—6 deciduous sepals, and 2 to many petals; the sepals and petals, when more than two, disposed ternarily; carpels whorled, very rarely solitary from abortion; leaves full of pellucid dots. Illícium is the only genus of this order which contains species that will stand out in the open air.

GENUS I.

ILLI′CIUM *L.* The Illicium, *or Aniseed Tree. Lin. Syst.* Polyándria Polygýnia.

Identification. Lin. Gen., 611.; Lam. Ill.; Dec. Prod., 1. p. 77.; Don's Mill., 1. p. 78.
Synonymes. Badiane, or Anis ètoilé, *Fr.*; Sternanis, *Ger.*
Derivations. The generic name, Illícium, is formed from the Latin word *illicio*, to allure, on account of the agreeable aromatic smell of all the species. It is called the Aniseed Tree, from its smell bearing a strong resemblance to that of aniseed. Badiane appears to be an aboriginal French word; Anis étoilé, and Sternanis, signify literally the starry anise, and may allude to the starry disposition of the parts of the flower and of the capsules.

Gen. Char. Calyx of 3-6 petal-like sepals. *Carpels* stellately disposed, capsular, opening on the upper side, 1-seeded. (*Don's Mill.*, i. p. 79.)

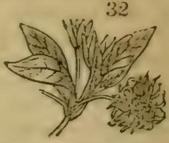
Description. The species are evergreen shrubs, with smooth, shining, oblong, stalked, leathery leaves; generally attaining the height, in their native countries, of from 5 ft. to 12 ft.; and, in this country, of from 3 ft. to 8 ft. in the open air, and more in a conservatory. They are nearly hardy.

Geography, History, &c. These shrubs are found in the southern states of North America, and in China and Japan. One species has been known in Britain since 1766; but the others are of more recent introduction. They are all spicy and aromatic; and, are employed, in their native countries, in the same manner as anise and coriander seeds are in Europe. Northward of London, as well as on the Continent, they are placed in the green-house during winter, or planted in the conservatory. Wherever they are planted, in common with most evergreen trees and shrubs having broad shining leaves, they prefer the shade to the sun; and, consequently, if they are planted against a wall, it ought to be one facing the south-east, or the south west, and never against one full south. They are all slow growers, and, to produce any effect, should never be planted near trees or shrubs which grow rapidly. They may all be planted in the open ground, in warm sheltered situations; but they require protection during winter. They are all easily propagated by cuttings of the ripened wood planted in sand, and covered with a glass, or by layers; and they all grow in a light loamy soil, or in a mixture of loam and sandy peat. One or more of the species is in most botanic gardens; and small plants may be procured, in some of the principal London nurseries, at from 2*s*. 6*d*. to 5*s*. each. The species are I. floridànum, I. *a*nisàtum, and I. parviflòrum.

✱ 1. Illi′cium florida`num *Ellis.* The Florida Illicium.

Identification. Lin. Mant., 395.; Willd. Sp., 2. p. 1294.; Dec. Prod., 1. p. 77.; Don's Mill., 1. p. 79.
Synonymes. The Florida Aniseed Tree, red-flowered Anise-seed tree *Mor. Hist.*; Badiane de la Floride, *Fr.*; unächter (spurious) Sternanis, *Ger.*
Engravings. Lam. Ill., t. 493. f. 1.; Curt. Bot. Mag., 439.; Lodd. Bot. Cab., t. 209.; E. of Pl., 7901.; and our *fig.* 32.

Spec. Char. Petals 27—30, dark purple, outer ones oblong, inner ones lanceolate. (*Don's Mill.*, i. p. 79.) West Florida. Evergreen. Flowers of a dark reddish purple. April to June. 1766. Height 6 ft.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Description. A compact, many-stemmed, bushy, evergreen, slow-growing shrub, attaining, in the neighbourhood of London, the height of 6 ft. or 8 ft. or upwards, and flowering every year. The leaves are oblong-lanceolate, quite entire, pointed at both extremities, smooth, shining, and, in common with the whole plant, have a rich reddish hue. The flowers are numerous, solitary, and terminal; and bear some general resemblance to those of Calycánthus flóridus.

Geography, History, &c. Found in West Florida, on the banks of the river Mississippi, and in marshy places near the town of Pensacola, by Bartram, in 1766. At first this plant was kept in stoves and green-houses; but some specimens were planted out in the open air, by Mr. Gordon, in his nursery at Mile End, where they remained above forty years, sometimes without any protection at all, and at others with only a mat thrown over them, or a slight covering of peas haulm. They grew in a deep, dry, sandy soil, in a warm situation, sheltered from the north-east and east, and open to the south. They were sold, with some other fine specimens, in 1834 and 1835. The properties of this species are of a very decided kind. The leaves and the entire plant are strongly impregnated with a spicy aromatic taste and smell, approaching to that of the seeds of the anise or coriander. The leaves, when bruised, smell strongly of anise, and may be distilled like the seeds of that plant. Though not used in medicine, there is little doubt, Professor Burnet observes, that the bark would answer the same purposes as that of canella, or sassafras. (*Outlines, &c.*, ii. p. 836.) The soil in which this plant is generally grown is a light sandy loam; but Dumont observes that, after trying it in loam, both in the open air and under glass, he found the leaves assume a yellow hue. He then tried pure heath soil, and soon perceived that the leaves had resumed their deep green colour, and the entire plant had begun to grow vigorously. The manner in which the plant is propagated in the London nurseries is, generally, by forming stools of it in a cold-pit, and laying down the shoots, which require two years to root sufficiently to admit of their being separated from the parent plant; but it is sometimes propagated by cuttings both of the young and of the old wood. As soon as the layers are taken off, they are potted, and kept in a green-house or frame till wanted for final transplanting. The situation of such a shrub in a garden should be in a select spot, where it can only be compared with slow-growing plants like itself. Being an evergreen, and finishing its growth early in summer, it would take little harm by being covered with mats or fronds for several months, provided these were supported so as not to touch it, and they were occasionally opened on fine days, on the south side, to admit the sun and air, in order to dry up the damps generated within; a covering of spruce fir branches would also form a very suitable protection. For a small conservatory where there is no means of heating, but from which the extreme cold is excluded, by covering the glasses with mats in severe weather, this, and other species of Illícium, would prove very suitable shrubs. Plants may be obtained, in the principal London nurseries, at from 2*s.* 6*d.* to 5*s.* each; in the Bollwyller Nursery, at 4 francs; and in New York, at 1 dollar. They are always sold in pots, being so grown in order that they may be protected by a frame during winter.

■ 2. ILLI´CIUM *A*NISA´TUM *L.* The Anise Illicium.

Identification. Lin. Sp., 664.; Gært. Fruct., 1. p. 338.; Dec. Prod., 1. p. 77.; Don's Mill., 1. p. 79.
Synonymes. The Chinese Aniseed tree; Badiane de la Chine, and Anis étoilé, *Fr.*; ächter (true) Sternanis, *Ger.*
Engravings. Kæmpf. Amœn., t. 881.; Gært. Fruct., 1. p. 338. t. 69; Lam. Ill., t. 493. f. 2.

Spec. Char. Petals 27—30, yellowish, outer ones oblong, inner ones linear awl-shaped. (*Don's Mill.*, i. p. 79). China. Flowers yellow. April till June. 1790. Height 10 ft.

Description. A large shrub or low tree, with a thick branchy stem, attaining the height of 20 ft. or upwards in its native country, but seldom appearing of half that height, even in conservatories, in England. The leaves are large, somewhat like those of the common laurel but smaller, lanceolate, thinly distributed on the lower parts of the shoots, but closer together near their points. The wood is hard, and finely scented, but fragile; and the bark is smooth, and russet-coloured. The fruit is composed of from 9 to 12 capsules (carpels) united at their base, and spread out at their extremities in the form of a star. Every carpel contains one oval seed, lance-shaped, and of a russet colour, which encloses a whitish kernel, somewhat oily, and agreeable to the taste, which is similar to that of the anise seed, but is more pungent. The shoots grow at about the same rate as those of the preceding species, and the plant attains its ultimate size of 10 ft. or 12 ft. in twenty or thirty years.

Geography and History. It is found wild in China and Japan, where it is cultivated in gardens as a sacred tree, and also for its carminative and stomachic qualities. It was first described by Clusius, and afterwards seen in Japan by Kæmpfer, who has given us a great many interesting particulars respecting it. It was introduced into England in 1790, and soon after into the garden of Courset, near Boulogne-sur-Mer; and it is now occasionally met with in the green-houses of the principal botanic gardens of the middle and north of Europe, and in the open ground of those in Italy.

Properties and Uses. The whole plant is stomachic and carminative, and it is used in the East both medicinally and in cooking. The Chinese chew it after dinner to promote digestion, and as a sweetener of the breath: the same practice prevails in Japan. In some parts of the East Indies the leaves are mixed with tea and sherbet, and the capsules are imported from China into Europe, under the name of Chinese anise, for the purpose of flavouring dishes, and making the liquor called *anisette de Bordeaux.* The Chinese make an infusion of the seeds with the roots of ninsin (*Sìum Nínsi* L.), and drink it, when they are fatigued, to recruit their strength and refresh their spirits. They also mix it both with coffee and tea, to improve the flavour. The capsules and seeds are infused in water, and fermented, so as to produce a vinous liquor, very much esteemed, and which the Dutch import under the name of anise arrack. Kæmpfer states that a branch of this plant, though not poisonous in itself, if put into a decoction of the poisonous fish called by the Dutch *opblaser* (a species of Tétrodon), increases the violence of the poison and makes it occasion death almost instantaneously. (*Kæmpf. Amœn.*, fasc. v. p. 883.) The wood, which is called anise wood, is employed in cabinet-work: it is very hard and durable, but is rather brittle while being worked. In China, the watchmen powder the bark, and with it fill long narrow wooden tubes, which are graduated on the outside at regular distances. The powder is then lighted at the farther extremity of the tube, and, as it burns regularly and slowly, it is always the same time in burning a given distance; and the watchman, when he sees by the graduated scale that the flame has reached a certain point, rings a bell, thus forming of it a kind of pyrotechnic clock. The Japanese and Chinese consider the tree as sacred: they burn the bark as incense on their altars, and with the branches decorate the tombs of their friends. (Thouin, *Dict. Agric.*; Roy., *Cours d'Agric.*)

Soil and Situation as in the preceding species, of which this, as Thunberg conjectures, is, in all probability, only a variety. It is, perhaps, rather more tender, and, therefore, should be placed in the warmest situation that can be found, but where it will, at the same time, not be too much exposed to the direct influence of the sun during the hottest months.

The Propagation and Culture are the same as of the preceding species. Plants are to be met with, in the principal London nurseries, at from 2*s*. 6*d*. to 5*s*. each; and at Bollwyller, where the price is 3 francs; in New York, ?.

■ 3. **Illi´cium parvifloˋrum** *Michx.* The small-flowered Illicium.

Identification. Mich. Fl. Bor. Amer., 1. p. 326.; Ph. Fl. Amer. Sept. 2., p. 380.; Dec. Prod., 1. p. 77.; and Don's Mill., 1. p. 79.
Synonymes. Illicium anisàtum *Bartram*; the small-flowered Aniseed Tree; Badiane à petites Fleurs, *Fr.*; kleinbluthiger Sternanis, *Ger.*
Engravings. Vent. Cels, t. 22.; Lois. Herb. Amat., t, 330.

Spec. Char. Petals 9—12, yellowish, ovate-roundish. Sepals 3, ovate, somewhat ciliated. (*Don's Mill.*, i. p.79.) West Florida. Flowers yellowish white. From May to June. 1790. Height 8 ft.

Description. This species is more upright and free-growing than either of the other kinds. The twigs and stems, which are numerous, are quite green when young; but as they become old they assume a greyish hue. The leaves are of the same consistency as those of I. floridànum, and of nearly the same size, but longer, and paler on the under side, with very short petioles. The flowers are smaller, and not so open as those of the other species; and their colour is of a yellowish white. I. parviflòrum is a low evergreen shrub, or rather bush, highly aromatic in every part when in a growing state; but the scent soon evaporates from every part of the plant after it is gathered, except from the fruit, the scent of which becomes even more fragrant, and more penetrating, when it is dry. In England, this plant seldom produces annual shoots of more than 5 in. or 6 in. in length; and it will probably attain the height of 5 ft. in ten years, and its full size in about twice that period. In Florida it forms a compact evergreen bush from 8 ft. to 10 ft. high.

Geography, History, &c. This shrub was first discovered by Bartram, and afterwards by Michaux, in Florida, on the bank of the lake Georgia; and it was sent by the latter to France, where it was cultivated in Cels's Nursery and in the *Jardin des Plantes*, in 1789. It was kept the first winter in the conservatory, and flowered in the course of the following summer. (*Nouv. Duh.*) It was introduced into England in 1790. The bark has exactly the flavour of the sassafras root, and the dried fruit is used for scenting linen. The propagation, culture, and price, in the London nurseries, are the same as those of the preceding species; at Bollwyller, ?; and in New York, 1 dollar.

CHAP. III.

OF THE HARDY TREES AND SHRUBS BELONGING TO THE ORDER MAGNOL*IAˋCEÆ.*

The term Magnol*iàceæ* is applied to this order, because the genus Magnòl*ia* is considered as its type. The diagnostic of the order, as given by De Candolle, was made to comprehend some tribes which have since been separated from it; but, as the hardy species still belonging to Magnol*iàceæ* are all included under the genera Magnòl*ia* and Liriodéndron, a sufficient character for them will be: a calyx of 3 deciduous sepals; a corolla of 3—12 petals, disposed in threes; anthers adnate, elongated; carpels numerous, disposed along a spiked axis; leaves destitute of pellucid dots, stipulate when young, the stipules convolute, and enclosing the unexpanded leaves. Evergreen and deciduous trees and shrubs. (*Don's Mill.*, adapted.) The differential characters of the genera Magnòl*ia* and Liriodéndron are as follows: —

Magnoˋl*ia* L. Carpel dehiscent; that is, opening to admit the escape of the seed.
Liriode´ndron *L.* Carpel indehiscent; that is, not opening to admit the escape of the seed.

Genus I.

MAGNO'L*IA* L. The Magnolia. *Lin. Syst.* Polyándria Polygýnia.

Identification. Lin. Gen., 690.; Gært. Frúct., 1. p. 343.; Dec. Prod., 1. p. 79.; Don's Mill., 1. p. 82.
Synonymes. Magnolie, *Fr.* and *Ital.*; Bieberbaum *Hart.*,; and Magnolie *Willd., Ger.*
Derivations. The name Magnòl*ia* was given to this genus by Linnæus, in honour of Pierre Magnol, professor of medicine, and prefect of the botanic garden at Montpelier. He was author of *Botanicum Monspeliense*, published in 1676, and of other works. He died in 1715. The German name Bieberbaum, beaver-wood, is applied generically by Hartweg in the *Hortus Carlsruhensis;* but, in America, beaver-wood appears to be applied only to M. glaúca.

Gen. Char. Calyx of 3 deciduous sepals, that resemble petals. *Corolla* of from 6—9 petals. *Stamens* numerous. *Pistils* numerous. *Carpels* disposed compactly in spikes, opening by the external angle, 1—2-seeded, permanent. *Seeds* baccate, somewhat cordate, pendulous, hanging out beyond the carpels by a very long umbilical thread. — Trees and shrubs with large entire leaves; and solitary, terminal, large, odoriferous flowers. Trees chiefly deciduous, but partly evergreen. (*Don's Mill.*, adapted.)

Description. One of the species is a lofty evergreen tree; but the others are deciduous, and partly trees and partly shrubs. The flowers of most of the species are white; but in some they are of a greenish yellow, and in others they are tinged with purple. The seeds are mostly of a scarlet colour. The roots are branched, and yet but sparingly supplied with fibres.

Geography. The native country of most of the hardy magnolias is North America; but there are some hardy species found in China and Japan, and, perhaps, also, in the Himalaya. No species of Magnol*iàceæ* has hitherto been found in Europe, Africa, South America, or Australia; and the geographical range of this order in America and Asia is comparatively limited. The first magnolias were imported into Europe about the year 1730, and into France and England nearly about the same time. From that period to the present new species have been introduced at intervals, and some may be expected from the mountainous regions of India. Most of them are to be found in all the botanic gardens, and in the principal European nurseries. All the magnolias are highly ornamental; and though this is their principal use in Europe, yet in America they are valued for their medical properties. The bark of all the species is bitter; and it is used in America for the same purposes as the Jesuits' bark is in Europe. The magnolias may be cultivated in most parts of Britain, and of the middle and southern states of Europe; but, north of London and Paris, some of the species require protection during winter, or to be kept in the green-house. A deep sandy soil, and a situation sheltered from the north and east, will suit most of the species; though some, as M. glaúca, for example, thrive best in a moist peaty soil. Few of the species ripen seeds in England, but most of them do so in France. From these seeds, or from such as are imported, all the American species are most frequently raised; but the species from Asia are increased by layers, as are the American species very frequently. In France, all the deciduous magnolias endure the open air, even in the northern provinces, without protection during winter, because, in consequence of the warm summers, the wood is thoroughly ripened. In the neighbourhood of Paris, all the species, even those of Asia, ripen seeds; though the evergreen magnolia requires protection there during winter. In Holland and Belgium, the deciduous magnolias thrive nearly as well as in France, and some of them ripen their seeds. In Italy, the magnolias suffer from the heat, except when planted in moist situations, and among other trees. In the north of Germany, in Russia, and in the greater part of Sweden, most of the magnolias are green-house plants.

The hardy species of this genus are included in two sections, Magnoli*ástrum* and Gwillími*a*.

§ i. *Magnoli*ástrum.

Derivation. *Magnòlia*; and *astrum*, from *ad instar*, an affixed particle, signifying likeness.

Sect. Char. American species, with one spathe-like bractea enclosing the flower-bud; ovaries approximate; anthers bursting outwards. (*Don's Mill.*, i. p. 83.)

⫯ 1. MAGNOˋ*LIA* GRANDIFLOˋRA *L.* The large-flowered Magnolia.

Identification. Lin. Sp., 755.; Lam. Ill., 490.; Mich. Arb., 3. p. 71.; Du Ham. Arb. Nouv. 2. p. 219.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 82.

Synonymes. Laurel-leaved Magnolia, the large-flowered evergreen Magnolia, the Laurel Bay, big Laurel, the large Magnolia; Laurier tulipier, *Fr.* in Louisiana; Magnolie à grandes Fleurs, *Fr.*; grossblumiger Magnolie, or Bieberbaum (Beaver-wood Tree), *Ger.*

Engravings. Mill. Ic., 2. t. 172.; Mich. Arb., 3. p. 71. t. 1.; Du Ham. Arb., 2. p. 219. t. 65.; E. of Pl., 7904.; and our Pl. I. in Vol. II.

Spec. Char. Evergreen. Leaves oval-oblong, coriaceous, upper surface shining, under surface rusty. Flowers erect, 9—12 petals, expanding. (*Don's Mill.*, i. 82.) North America. Flowers white. June to Sept. 1737.

Varieties. The aboriginal varieties, that is, those which have been found in a wild state in North America, are few, or perhaps only the M. g. obovàta; because it is uncertain whether the original Exmouth magnolia, which has been so extensively propagated, was an imported plant, or one raised from seed on the spot. The principal varieties cultivated in the London and Paris nurseries are the following: —

⫯ *M. g.* 2 *obovàta* Ait. *The obovate*-leaved *large-flowered Magnolia.* — Leaves obovate-oblong. Flowers expanded. (*Hort. Kew.*, vol. iii. p. 329.) This seems to be the only variety found in a wild state. In British gardens it is a magnificent plant, the broad ends of its leaves forming a conspicuous feature, and distinguishing it readily from the original species, the leaves of which are pointed; but it does not flower freely.

⫯ *M. g.* 3 *rotundifòlia* Swt. *The round-leaved large-flowered Magnolia.* (*Swt. Hort. Brit.*, p. 14.) — Leaves roundish. Not a very distinct or handsome variety, and not a free flowerer.

⫯ *M. g.* 4 *exoniénsis* Hort. *The Exmouth large-flowered Magnolia.* — The leaves are oblong-elliptical, generally rusty underneath. Flowers somewhat contracted. M. g. stricta in some gardens. Figured in Lodd. *Bot. Cab.*, 1814, and in our Second Volume. This is the most distinct of all the varieties of the species, and, on account of its flowering early and freely, the one best deserving of general culture. It forms a tall, fastigiate, elegant bush, or tree, and has attained the height of 30 ft., as a standard, at various places in the south of England.

⫯ *M. g.* 5 *ferruginea* Sims. *The rusty*-under-surfaced-leaved *large-flowered Magnolia*; or the rusty-leaved evergreen Magnolia.—This differs from the preceding in having rather broader leaves and larger flowers, and in forming a broader and more compact tree or bush.

⫯ *M. g.* 6 *lanceolàta* Ait. *Bot. Mag.* t. 1952. *The lanceolate*-leaved *large-flowered Magnolia.* —This differs from the preceding varieties, in not having the leaves rusty underneath; in not being quite so fastigiate in general form as the former, nor so broad and bushy as the latter.

⫯ *M. g.* 7 *elliptica* Ait. *The elliptic*-leaved *large-flowered Magnolia.*—Leaves oblong-elliptical. Flowers contracted as in the three preceding varieties, from which it differs only in the form of the leaves.

⫯ *M. g.* 8 *angustifòlia* Hort. *The narrow-leaved large-flowered Magnolia.* — Leaves lanceolate, pointed at both extremities, wavy. A very distinct variety, introduced from Paris about 1825, which has not yet flowered in England. The best specimens of this variety are in the London Horticultural Society's garden; in the arboretum of Messrs. Loddiges; and in Lee's Nursery.

⫯ *M. g.* 8 *præˋcox* Hort. *The early*-flowering *large-flowered Magnolia.* — Leaves oval-oblong. Flowers fully expanded. This is an early variety, introduced from Paris about (?) 1830; and there is a plant of it in Lee's Nursery, and another in the garden of the London Horticultural Society, named M. g. præ̀cox *André.* The flowers are as large as those of any of the varieties, and they are produced from the end of May till the approach of winter.

Other Varieties. In consequence of the great demand for this species in the nurseries, many slight variations have been noticed by cultivators, and named as distinct. In the garden of the London Horticultural Society are the following names: — *M. g. vèra, M. g. latifòlia, M. g. exoniénsis var., M. g. rubiginòsa,* and some others.

Selection of Varieties. M. g. obovàta deserves the preference for the magnificence of its foliage; and *M. g. exoniénsis,* because it flowers early and freely; and because, from the fastigiate form of the tree, it is less liable to be injured by a heavy fall of snow; it seems also to grow faster than any of the other varieties. Where the tree is to be trained against a wall, *M. g. præ̀cox* deserves the preference on account of the largeness of its flowers, and because they appear early, and continue during the whole summer. *M. g. angustifòlia* deserves culture on account of its foliage, which is quite distinct from that of all the other varieties. The species sold in the nurseries as the common broad-leaved Magnòl*ia* grandiflòra is frequently raised from American, French, or Italian, seeds; and, hence, the plants, though they grow freely, do not flower for 20 or 30 years after being planted out. For this reason, when it is desired to have plants of the Magnòl*ia* grandiflòra which will flower early, those plants which have been raised by layers from flowering trees ought to have the preference; or the Exmouth variety should be made choice of, because it is always raised from layers.

Description. In its native country, the M. grandiflòra is a tree varying from 60 ft. to 100 ft., or upwards, in height. According to Bartram, its head forms a perfect cone, placed on a straight clean trunk, resembling a beautiful column; and, from its dark green foliage, " silvered over with milk-white flowers," it is seen at a great distance. In Europe, except in some situations in Spain and Italy, and a few in the south of England, the M. grandiflòra is chiefly to be considered as a wall tree. There are standards of it, in the neighbourhood of London, of 20 or 30 years' growth; but these are not common; and, on account of the snow breaking down their branches, they require protection during winter. The leaves vary from 9 in. to 1 ft. in length, and from 3 in. to 4 in. or more in breadth; they are always smooth and shining, and perfectly entire on the edges. They bear a strong resemblance to those of the common laurel (*C*érasus Laurocérasus) both in form and colour; and to those of the orange tree in colour and glossiness, but not in size. In most of the varieties, they are of a rusty brown underneath; and one takes its name from this appearance, though it varies in intensity so much with soil and situation, as to seem rather a variation, than a variety which may be continued by propagation. In America, the flowers appear in May; in England, seldom before June; and they continue in some varieties till they are destroyed by frost. The flowers are produced on the summits of the last year's shoots, and are from 6 in. to 8 in., or even 10 in., across. It is remarked by Collinson, of the flowers of this species of Magnòl*ia*, that, unlike those of all the other species (unless we except M. glaúca, when it is planted in moist situations), they are produced throughout the whole season; whereas those of all the other species are produced comparatively at once, and last only a short time. The odour of the flowers is exceedingly sweet, and overpowering to some when near, though it is agreeable at a distance. The seed of the species has in only one or two cases been ripened in England; but it ripens occasionally in Italy and in the neighbourhood of Paris (*Bonpl. Malmaison,* p. 54.); and young plants are frequently raised from seed brought from North America.

Geography. Found in the forests of America, from North Carolina to Louisiana. Of all the trees of North America, east of the Mississippi, it is observed by Michaux, and in the *Sylva Americana* of Brown, the big laurel is the most remarkable for the majesty of its form, the magnificence of its foliage, and the beauty of its flowers. It is first seen in the lower part of North Carolina, near the river Neuse, in the latitude of 35°; proceeding from this point, it is found in the maritime parts of the southern states and of the Floridas, and as far up the Mississippi as Natches, 300 miles above New Orleans, which embraces an extent of 2000 miles of territory. The French of Louisiana call it *laurier tulipier*. It grows only in cool and shady places, where the soil, composed of brown mould, is loose, deep, and fertile. These tracts lie contiguous to the great swamps, which are found on the borders of the rivers, and in the midst of the pine barrens, or form themselves a part of these swamps; but they are never seen in the long and narrow marshes called branch swamps, which traverse the barrens in every direction, and in which the miry soil is shallow, with a bed of white quartzose sand beneath. (*Syl. Amer.*, p. 211.)

History. The precise date of the introduction of M. grandiflòra into Britain is uncertain. In the *Hortus Kewensis* it is stated, on the authority of Catesby, that it was cultivated before 1737 by Sir John Colliton, at Exeter; and, as far as is known, the tree there, which is the parent of all those varieties bearing the name of M. g. exoniénsis, was the first which was raised or planted in England, and, in all probability, in Europe. This tree, a notice of which will be found in the *Gardener's Magazine*, vol. xi. p. 70., was cut down, through mistake, about the year 1794. It had previously been much disfigured from the great number of layers that had been taken from it; and, though the trunk was 18 in. in diameter, its height was not more than 5 ft. It had been surrounded by a scaffolding for many years, on which tubs were placed to receive the branches laid down for propagation. The tree seems to have been rented by different gardeners, who at first sold the layers at five guineas each; but the price gradually fell to half a guinea. From the source of supply being in this part of England, it will readily be conceived that the largest specimens are in Devonshire. None of these, however, of which we have been able to obtain dimensions, exceed 30 ft. in height. Collinson mentions that on returning to Goodwood, after nine years' absence, he found two plants of Magnòl*ia* grandiflòra in flower (see p. 55.); and that he had a plant, raised by himself from seed, which flowered for the first time in 1760, when twenty years old.

The history of the introduction of the M. grandiflòra into France is thus given by M. Merlet de la Boulaye, professor of botany at Angers, in the new edition of Du Hamel: — " There is at Maillardière, distant about 5 miles from the town of Nantes, a fine magnolia, which was brought from the banks of the Mississippi in 1732, and planted in a poor soil. It grew there more than thirty years without any care having been taken of it; as the marine officer who brought it died soon after he had planted it, and his heirs did not trouble themselves about a tree which had as yet produced them nothing, and appeared to them merely a variety of the *C*érasus Laurocérasus. M. Bonami, a physician of Nantes, and professor of botany there, who published a *Flora* of this district, recognised, in 1758, this beautiful tree to be the Magnòl*ia* grandiflòra of Linnæus; and, at the meeting of the states of Bretagne, which was held at Nantes in September, 1760, he presented to the Princess of Rohan-Chabet a fine branch of this magnolia in flower, which became a subject of conversation and interest to all there assembled. Louis XV. possessed several small plants of the Magnòl*ia* grandiflòra in his garden of the Petit Trianon, but they did not thrive; and, having heard of a magnolia 35 or 40 ft. high, which every year was covered with fine flowers of a delicious perfume, he sent two of his gardeners to ascertain if it was possible to transport this fine tree to Versailles; and, above all, should they do so, if it would be certain to grow. They saw the tree; and, being of opinion that it would not survive removal, it was suffered to remain in its place. This magnolia was, at that time, from 35 ft. to 40 ft. high; but, during the troubles of the civil war of La Vendée, it was mutilated, and lost most of its branches. Afterwards, the burning of the house near which it was planted having damaged its fine head, it was treated as an orange tree injured by the frost; that is to say, the branches were cut off close to the trunk. It shot out vigorously; but the young shoots, not having had time to ripen, were destroyed by the frost. Notwithstanding this check, it again recovered, and afterwards became a fine tree, between 25 ft. and 30 ft. high, with a large, well proportioned head, and a trunk 4 ft. in circumference, the lower branches sweeping the ground; and the whole tree producing annually from 350 to 400 large, elegant, and sweet-scented flowers. The seeds, however, never arrive at perfect maturity; although the fruit attains its full size, and remains upon the tree till the following spring." (*Nouv. Duh.*, i. p. 220.) This tree, as we have noticed in p. 138., still exists, and is now upwards of 30 ft. high, and 100 years of age.

M. grandiflòra, soon after its introduction into France and England, would doubtless find its way into the botanic gardens of Germany. In Italy, as already noticed in p. 169., the first planted trees were in the botanic garden at Padua, where, in 90 years, they have attained the height of 60 ft., with trunks 4 ft. in diameter; and in the botanic garden at Pisa, as we are informed in the *Nouveau Du Hamel*, it produced perfect seeds, from which plants were raised by M. Marmier, on his estate at Rois, near Besançon. The tree has been introduced into the botanic gardens of Spain; also, it is believed, into those of South America and India; and, as stated in p. 176., into the gardens of China.

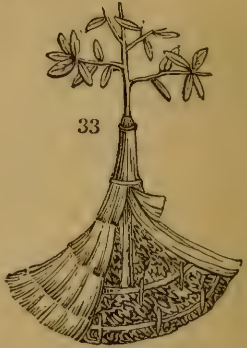
Properties and Uses. The medical properties of the genus have been already mentioned. In Europe, it can only be considered in the light of an ornamental tree, or rather, perhaps, shrub; as, generally speaking, it can only be cultivated with success when trained against a wall.

Soil and Situation. In Europe, a deep sandy loam, dry at bottom, and enriched with vegetable mould or heath soil, seems to suit all the varieties of this species. The situation in the colder parts of Europe may be exposed to the direct influence of the mid-day sun; but, in the south of France, and in Italy, the tree always thrives best when in the shade of other trees; and in these countries, also, it requires a moister soil than in England. Where the tree is to be treated as a standard, the situation should be sheltered from the points from which the highest winds are expected, but it should be open to the south or south-east, to admit abundance of light and warmth. In general, where the fig tree will grow as a standard, and survive the winter without protection, there the Magnòl*ia* grandiflòra may be planted, and treated as a standard also. The best situations are, the south-east margin of a shrubbery or wood, a sheltered place on a lawn, or an open glade in a plantation. Perhaps the finest situation for displaying the flowers of this tree, as a standard, would be a sloping bank of sandy soil facing the south-east. Here it might be mixed with a few of the deciduous magnolias, and particularly with M. conspícua and Soulange*àna*, which, as they flower before their leaves come out, would be set off to great advantage by the evergreen leaves of M. grandiflòra. When this species is to be trained against a wall, any aspect may be chosen, except, perhaps, the north-east. To display the flowers to the greatest advantage, to a spectator walking in a direction nearly parallel to the wall, the ground plan of the latter should be curvilinear, by which means a direct or front view of a considerable portion would be brought before the spectator. In general, a segment of a circle will be sufficient for a short wall; and two or more segments, forming an ogee, or a serpentine line, for a longer wall. In a very exposed situation, a magnolia wall, 20 ft. or 30 ft. high, might form three parts of a round tower, open at top; the lateral opening facing the south, and the trees planted inside the tower. All the trees might easily be protected by throwing a slight roof of boards over the tower during winter. If the tower were not more than 20 ft. or 30 ft. in diameter, the walls, if built of brick and cement, need not be thicker than 9 in., even if made 30 ft. high. Magnolias might be grown in the inside of such a tower, and camellias on the outside. The wall may be of any height, from 10 ft. to 20 ft., or even 50 ft. A wall covered with evergreen magnolias, interspersed with a few plants of M. conspícua, forms a beautiful medium of connexion between a conservatory and a flower-garden or shrubbery; or it forms an admirable northern boundary to a winter walk, or a winter flower-garden. The finest magnolia wall in England is that at White Knights, near Reading; it is 145 ft. long, and 24 ft. high. The upper part of it is formed of trellis-work, which projects with a curve, the tangent to which forms an angle of, perhaps, 45° with the face of the wall. On this trellis the upper branches of the trees terminate, and, by their projection, protect all those beneath them from perpendicular rains or snows. Such protection, however, is altogether unnecessary, as the magnolias against walls, in Messrs. Loddiges's arboretum, and in various nurseries and gardens about London, abundantly testify. Indeed, it cannot fail to be ultimately injurious, not only by keeping off perpendicular rains, but by excluding the direct influence of the sun's rays from the upper part of the tree. As this species of magnolia does not flower till June or July, its blossoms are in no danger of being injured by frost; and, therefore, it requires no projecting coping, or covering of any sort, during winter, at least about London. Where danger is anticipated from severe frost, attention should be directed to protecting the roots, and especially the collar and the stem, for 2 ft. or 3 ft. above the ground.

Propagation, in the London nurseries, is generally effected by forming stools either in warm situations in the open air, to be protected during winter, or in cold-pits. The shoots are laid down in autumn, and require two years to become sufficiently rooted for separation; they are then potted, and kept in pits or under glass during winter, and set in the open air, in a shady place, during summer, till wanted for final planting. M. grandiflòra is also occasionally raised from American seeds; but, as plants so originated are much longer in coming into flower than plants raised from layers (as we have before observed, p. 262.), they are not in demand.

Choice of Plants. In no case whatever would we recommend purchasing any species of magnolia not grown in a pot; because plants so grown may be sent to any distance without injury to the roots, which are few and succulent, and easily damaged by exposure to the air and light.

Planting, Culture, and Management. In planting, the ball should be carefully broken by the hand, and the roots spread out in every direction, and covered with heath mould, or a mixture of leaf mould and sandy loam. The soil ought to be made firm to the fibrous roots, not by treading, but by abundant watering, and, if the plant be large, by fixing with water; that is, while the earth is being carefully put about the roots by one man, another should pour water over it from a pot held 6 ft. or 8 ft. above it, so that the weight of the water may wash the soil into every crevice formed by the roots, and consolidate it there. Shading will be advisable for some weeks, or even months, after planting: to a standard, this may be given by placing a cone of wicker-work over the tree by day, and taking it off at night; or by sticking a few spruce fir or other twiggy branches in the soil round it, or, at least, on the south side. Against a wall or trellis, it may be sheltered by an old net during day, which is to be taken off at night, or by any other convenient means. If the magnolia be intended to form a handsome tree as a standard, it should not only have a sufficient depth of suitable soil, and a dry sheltered situation open to the south, but it should be pruned to a single stem for at least 3 ft. or 4 ft. from the ground, to direct the growth to the head. If the plant does not grow freely after it has been three or four years planted, it ought to be bentdown to the ground, and kept in that position till it throws up one strong shoot from the collar. The old stem should then be cut away, leaving only the new shoot; and this shoot, which will probably extend to 3 ft. or 4 ft. the first season, will soon form a handsome tree. The greater part of the magnolias which are planted as standards, as far as we have been able to observe, are treated in such a manner that they can never be expected to become any thing else than mere bushes. The soil is not properly prepared; or, if prepared, a sufficient quantity of it is not brought together: because, to admit of this species growing to a tree, the subsoil ought to be prepared by art as well as the soil. The plants, too, are generally turned out of their pots without breaking the ball, and spreading the roots; and it has been ascertained, that the Magnòl*ia* grandiflòra, and various other exotic trees, when treated in this manner, will remain for several years before the roots strike into the adjoining soil. If the Exmouth variety of this species be made choice of, layers will produce flowers in a year or two after being separated from the parent plant, if kept in pots; but, when they are planted out, and grow freely, so as to make shoots 2 ft. or 3 ft. every season, they will probably not flower for three or four years. Whether the tree be against a wall or trellis, or treated as a standard, all the pruning it will require, after it has begun to grow freely, will be, to cut out the stumps from which the flowers or the strobiles have dropped off, and any dead or decaying wood, and any branches which cross and rub on each other. For a few years after being planted as a standard, it may be advisable to form a small cone of thatch, litter, leaves, or spruce fir branches, round the stem, as practised by M. Boursault in Paris, and exhibited in *fig.* 33. M. Boursault found that, by this kind of protection, he could grow the magnolia, and various other exotics, as standards, to a size which had never before been seen in Paris (See *Gard. Mag.*, ii. p. 63.) Magnolias against a wall require very little protection, even when young; and this can easily be given by mulching the ground at the roots, and covering their branches with a mat, or with the fronds of the spruce fir.



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*Statistics. Magnòl*ia *grandiflòra in the Environs of London.* At Syon, 50 years planted, 25 ft. high; at Chiswick, 30 years planted, 15 ft. high; in a garden at Isleworth, 20 ft. high; at Fulham palace, M. g. exoniénsis 8 years planted, 15 ft. high: these are all standards. There are numerous instances of this species, or its different varieties, planted against walls in the neighbourhood of London, attaining the height of 20 ft., reaching above the wall, and extending 15 ft. or 20 ft. on each side of the main stem. Among the most remarkable may be cited, the magnolias in the botanic garden at Kew, those at Purser's Cross, and at Harringay; at which last place there is one, 20 years planted, which is 20 ft. high.

*Magnòl*ia *grandiflòra South of London.* As standards, the largest are at Powderham Castle, and at Coombe, near Plymouth; at both places upwards of 30 ft. high: at Saltram, 60 years planted, 25 ft. high: at Killerton, 18 years planted, the Exmouth variety has attained the height of 23 ft., and flowers nine months in the year. At Eastwell Park, in Kent, 6 trees of M. g. obovàta, 20 years planted, have attained the height of 25 ft. Examples of Magnòl*ia* grandiflòra against a wall, growing vigorously, and flowering freely, might be given by hundreds. The most remarkable are those at White Knights, see p. 217. and p. 265. The wall was planted in 1800, with twenty-two plants, which cost six guineas each. They were placed in a prepared border, 12 ft. wide, and 6 ft. deep, the soil being a mixture of sand, vegetable mould, and loam; and the subsoil a retentive loam. The trunks of the trees, in 1835, were from 5 in. to 7 in. in diameter; and the plants produce flowers every year, from the beginning of June till they are checked by frost. At Sandown Place, in Surrey, there is a Magnòl*ia* grandiflòra trained against a house, 40 ft. high; at Farnham Castle, there is one against a wall, 20 ft. high; at Leigh Court, in Somersetshire, there is one against a wall, 20 ft. high; at Cowdray, in Sussex, one 24 ft. high; and at Bowood, in Wiltshire, one 25 ft. high.

*Magnòl*ia *grandiflòra North of London.* In Hertfordshire, at Hatfield, against a wall, there is a tree 20 ft. high; and, at Wormleybury, one 30 years planted, 24 ft. high; at Golden Grove, in Pembrokeshire, one 12 ft. high, as a standard; at Whitley Abbey, in Warwickshire, there is one 17 ft. high, as a standard; and in Worcestershire, at Croome, against a wall, one 35 ft. high.

*Magnòl*ia *grandiflòra in Scotland.* In the Edinburgh Botanic Garden, 12 ft. high, against a wall; at Dalkeith Palace, 10 ft. high, against a wall; in the Glasgow Botanic Garden, only a few feet high, and requiring protection during the winter. At Thainston, and other places in Aberdeenshire, from 6 to 10 ft. high.

*Magnòl*ia *grandiflòra in Ireland.* In the Collingswood Nursery, near Dublin, 20 years planted, and 17 ft. high; against a wall, flowering freely every year. In the Trinity College Botanic Garden, 22 years planted, and 10 ft. high. In Ireland generally, the Magnòl*ia* grandiflòra grows much better than in Scotland, or in the north of England; but the dimensions which have been sent to us are all of young trees; for it has not been long the custom in Ireland to plant any trees against walls, except those bearing fruit.

*Magnòl*ia *grandiflòra in Foreign Countries.* In France, the best collection of varieties of this species was formerly at M. Boursault's (*Gard. Mag.*, ii. p. 63.); and is now at Admiral Tchitchagoff's, at Scéaux, where the highest standard plants, about 15 years planted, are 20 ft. high. The largest trees in France appear to be at Maillardière, near Nantes, where, besides the parent tree already mentioned (p. 263.), there are others, varying from 30 ft. to 45 ft. in height, which have been planted from 50 to 80 years. In the Botanic Garden at Toulon there is a tree, 18 years planted, which is 20 ft. high. In Belgium and Holland, the M. grandiflòra is trained against a wall, and protected during winter, or treated as a conservatory plant, as it is in the greater part of Germany, Denmark, Sweden, and Russia, except in the Crimea, where, as we have seen (p. 159.), there are some large specimens, as standards, in the open air. In Italy, there are a greater number of fine specimens of this tree than there are in any other country in Europe; as may be seen by referring to p. 168. and p. 169. The highest trees appear to be those in the botanic garden at Padua, and in the English garden at Caserta, which have attained the height of 60 ft. The tree of this species in the botanic garden at Pisa, as we have seen (p. 169.), ripened seeds many years ago.

Commercial Statistics. Price, in the London nurseries, of young plants in pots, M. grandiflòra, 3*s.* 6*d.*; M. g. obovàta, or obtusifòlia, 7*s.* 6*d.*; M. g. exoniénsis, 5*s.*; at Bollwyller, where this species is a green-house plant, from 3 francs to 25 francs; and in New York, 1 dollar, and the seeds 9 dollars per quart.

‡ 2. M. GLAU'CA *L.* The glaucous-*leaved* Magnolia.

Identification. Lin. Sp., 2. p. 755.; Willd. Arb., p. 230.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 82.
Synonymes. M. frågrans *Salisb.*; Swamp Sassafras, Beaver-wood, white Bay, small Magnolia, Swamp Magnolia; Magnolie glauque, Arbre de Castor, *Fr.*; grauer Bieberbaum, *Ger.*
Derivations. It is named Swamp Sassafras on account of its growing in boggy places, and resembling in qualities the *Laúrus Sássafras*; and Beaver-wood, because the root is eaten as a great dainty by the beavers, and these animals are caught by means of it. It also grows in the swamps, which they inhabit; and Michaux tells us that it is felled by them for constructing their dens and houses, in preference to any other tree, on account of the softness of the wood.
Engravings. Lodd. Bot. Cab., t. 215.; Sims, Bot. Mag., 2164.; Nouv. Duh., 2. p. 223.; E. of Pl., 7905.; and our plate of this species in Vol. II.

Spec. Char. Almost deciduous. Leaves elliptical, obtuse, under surface glaucous. Flower 9—12-petaled, contracted. Petals ovate, concave. (*Don's Mill.*, i. p. 82.) North America. Flowers white, scented. June to September. 1688. Height, in England, 20 ft.

Varieties. The only aboriginal varieties, if varieties they can be called (for they appear to be only variations), are, that which retains its leaves during the greater part of the year, which appears to depend upon the moisture of the soil in which the plant grows, and which is called, in the nurseries, M. glaúca sempervìrens; that which assumes more of the tree character, and is called M. glaúca arbòrea; and a third, noticed by Pursh, which has the under surface of the leaves somewhat silvery, and is accordingly named M. g. argéntea.

‡ *M. glaúca* 2 *Thompson*iàna *Thomp. Thompson's glaucous*-leaved *Magnolia.* M. glaúca var. *a* màjor (*Bot. Mag.*, new edit. p. 36.) —This is a supposed hybrid between M. glaúca and M. tripétala; though it may possibly be only a long-leaved arboreous variety of M. glaúca. It was noticed in a pot of seedlings by Mr. Thompson, in his nursery at Mile End, and by him kept distinct, and propagated under the above name. We should say that it was only a variety or race of the aboriginal species, enlarged in all its parts.

‡ *M. glaúca* 3 *longifòlia* Hort., *the long-leaved glaucous Magnolia*, is a variety produced, as it is supposed, between M. tripétala and M. glaúca. It was originated in Belgium, and imported into this country by Mr. Knight of the Exotic Nursery, King's Road, Chelsea. It is in appearance intermediate between the two species; and seems to correspond with the M. longifòlia of Pursh. The leaves are elliptical, acute at both ends, longer than those of M. glaúca Thompson*iàna*, and resembling those of M. tripétala, but thicker, smaller, and glaucous underneath. It is a very handsome tree, and, supposing it to be that described by Pursh, it is found in Florida and Georgia. The flowers are sweet-scented, and resemble those of M. glaúca Thompson*iàna*, but are smaller.

Other Varieties. *M. glaúca Gordon*iàna, and *M. glaúca Burchell*iàna are variations or varieties, the names of which are found in some nurserymen's catalogues; the former having been raised by Mr. Gordon, at Mile End, and the other by Mr. Burchell, at Fulham: but they do not appear to us at all distinct. There are also semi-double and double-flowered varieties in some nurserymen's catalogues, but the only distinct varieties are M. glaúca Thompson*iàna*, and M. glaúca longifòlia.

Description. A low tree, nearly evergreen, with slender stem, covered with a smooth whitish bark. The wood is white and spongy. The leaves are smooth, of a bluish green on their upper surface, and whitish or glaucous and a little hairy underneath. The flowers are produced in May or June, at the extremity of the last year's shoots. They have six concave white petals, and an agreeable odour. The spike of fruits is an inch or more in length, conical, an inch in diameter in the widest part, and of a reddish brown colour when ripe. This tree begins to flower, in the United States, in May, June, and July; when the perfume of the flowers may be perceived at a considerable distance. A few of these flowers, shut up in a room over night, communicate to the air a heavy and almost insupportable odour. (*Bigelow's Med. Bot.*, vol. ii. p. 68.) When the plant is in a soil supplied with moisture during the summer, it continues to produce flowers till the autumn, and retains part of its leaves all the winter: in dry situations the leaves drop off. Seeds are frequently ripened in England: they are of a bright scarlet, and they hang down by slender white threads, as in all the other American species. The young shoots are from 1 ft. to 18 in. in length, and the plant, in ordinary circumstances, will attain the height of 12 ft. in ten years: when full-grown, it is seldom, either in its native country or in England, more than 18 ft. or 20 ft. high; which height in England it arrives at in twenty years.

Geography. Found in low situations near the sea in North America, from Massachusetts to Louisiana; more especially in New Jersey and Carolina, where it seldom grows to above 12 ft. high. It has the most extensive range, especially near the sea, of any of the genus. Its most northern boundary appears to be in a sheltered swamp in Manchester, Cape Ann, about thirty miles north of Boston. It here attains to but small size, and is frequently killed to the ground by severe winters. It is common in the middle and southern states; and Michaux informs us that it is one of the most abundant trees in the morasses of Florida and Lower Louisiana. According to this author, however, it is not usually met with far in the interior, or to the west of the mountains. Its common names are various, and change with almost every district. It is naturally a tenant of deep boggy swamps, and is somewhat irregular in its growth. It acquires more symmetry of form when cultivated in an upland soil, although its transplantation is difficult. To insure its successful cultivation in a dry soil, the tree should be raised from the seed. (*Bigelow's Med. Bot.*, vol. ii. p. 68.)

History. This species was introduced into England by Banister, who sent it to Bishop Compton, at Fulham, in 1688. It was soon afterwards generally propagated by American seeds, and became known throughout Europe many years before any of the other species.

Soil and Situation. The soil ought to be a deep sand, or a sandy peat, kept moist, more especially in summer. The situation should be sheltered and shaded by larger trees, but not overtopped by them.

Properties and Uses. The bark is aromatic and pungent, apparently more so than that of most of the other species. When distilled, it has a peculiar flavour, and an empyreumatic smell. In a dry state it affords a little resin. The aroma is volatile, and probably an essential oil or variety of camphor. The bark, seeds, and canes, are employed in tincture, with very good success, in chronic rheumatism. The inhabitants of the marshy countries of America have used the bark, like that of the cinchona, in the case of intermittent and remittent fevers. The inhabitants of the countries where the plant is indigenous cure coughs and other pectoral diseases by putting the fruit into brandy, and administering the decoction every morning. The wood is employed for making joiners' planes. The flowers, in a dried state, may be used in drawingrooms for *pot pourri*, as a substitute for those of the lily of the valley. In Europe, the plant can only be considered as ornamental.

Propagation and Culture. Plants are generally originated from seeds imported from America; but M. glaúca Thompson*iàna*, and the other varieties, are propagated by layers, which require two years to root properly; or by inarching. The seeds should be sown in pots of bog earth about the beginning of March, and placed in gentle heat under glass. In a year they will be fit to transplant into small pots; and every year they should be shifted into others of a larger size, till wanted for final planting out.

Statistics. Magnòlia glaúca in Great Britain. This species is by no means uncommon, but always as a standard, and, when in a thriving state, in moist peat soil. The largest tree in the neighbourhood of London is that at Syon, figured in our Second Volume. There are in Thompson's Nursery, at Mile End, various specimens from 17 ft. to 20 ft. in height; and one of the var. Thompson*iàna* still higher. There is one at Kew, 30 years planted, which is 20 ft. high; one of the same age and height at White Knights, and another in the Killerton Nursery; one at Cobham Hall, Kent, 25 years planted, and 25 ft. high. At Woburn Farm, Chertsey, there was formerly a row of trees of this species 20 ft. high, and nearly a century old, which were cut down when the new house was built. (*J. M.*, in *Gent. Mag.*, new series, vol. iii. p. 226.) At Alton Towers, in Staffordshire, the tree has attained the height of 12 ft. in 10 years; and at Croome, in Worcestershire, 15 ft. in 25 years. At Cownan House, in Cromarty, in lat. 55° 35″, and 161 ft. above the level of the sea, young plants were growing freely in 1835. At Oriel Temple, near Dublin, trees 10 years planted have attained the height of 11 ft.

Magnòlia glaúca in foreign countries. In France this species is not very abundant, from the great heat of the summers, and the general dryness of the air; but, in some shaded moist situations at Versailles and the Petit Trianon, it has attained the height of 15 ft. There are trees of most of the varieties, of from 10 ft. to 12 ft. in height, at Sceaux and at Fromont, and small plants in many of the botanic gardens both of France and Germany. In Belgium there are trees upwards of 15 ft. high in various private gardens, and of a smaller size in the botanic garden at Ghent, and in the grounds of the palace of Läcken. In the north of Germany, and in Sweden and Russia, it is a green-house plant; and, though it is to be found in the south of Europe in most of the botanic gardens and best private collections, yet, owing to the heat and dryness of the air, it does not thrive in these countries. M. glaúca, and all its varieties, will be found at Monza.

Commercial Statistics. Plants for sale, whether seedlings or layers, are generally kept in pots. The price, in the London nurseries, is 2*s.* 6*d.* each; at Bollwyller, 10 francs; and in New York, 12 dollars per hundred, or 14 cents each, and 2 dollars 75 cents per quart of seed. In London the seed is sold by Charlwood for 1*s.* 6*d.* an ounce.

‡ 3. MAGNO`L*IA* TRIPE´TALA *L.* The three-petaled Magnolia.

Identification. Lin. Sp., 2. p. 756.; Willd. Baum., 231.; Pursh, 2. p. 381.; Michx., 3. p. 90.
Synonymes. M. umbrélla *Lam.*, *Nouv. Duh.*, *Dec. Prod.*, *Don's Mill.*; M. frondòsa *Salisb.*; the Umbrella Tree; Umbrella Magnolia; Elkwood; Magnolie Parasol and Arbre Parasol, *Fr.*; dreyblättriger Bieberbaum, dreiblättrige Magnolie, *Ger.*
Derivations. This species is called the Umbrella Tree, according to Michaux, because its leaves, which are thin, oval, entire, and acuminate at both extremities, 18 in. or 20 in. long, and 7 in. or 8 in. broad, are often disposed in rays at the extremity of vigorous shoots; and these display a surface of 2½ ft. in diameter, in the form of an umbrella. The tree is called Elkwood in the mountains of Virginia, probably from the resemblance which the points of the shoots bear to the horns of the elk. The French names merely signify Umbrella Tree, and the German ones the three-petaled Beaver Tree, or Magnolia.
Engravings. Michx. Arb., 3. t. 5.; Lodd. Bot. Cab., t. 418.; Otto., t. 18.; Nouv. Duh.; and the plate of this species in our Vol. II.

Spec. Char. Deciduous. Leaves lanceolate, spreading, adult ones smooth, younger ones pubescent underneath. Petals 9—12, exterior ones pendent. (*Don's Mill.*, i. p. 83.) North America. Flowers white. In May and June. 1752. Height 30 ft.

Description. This tree, both in America and Europe, is remarkable for the largeness of its leaves, and its flowers. The wood is spongy, brittle, with a large pith, soft, porous, and of very little use. The bark upon the trunk is grey, smooth, and polished; and, if cut while green, it exhales a disagreeable odour. In Britain the tree sends up various shoots from the root, to replace the stems, which are seldom of long duration; so that a plant that has stood thirty or forty years in one spot has had its stems several times renewed during that period. In America it seldom exceeds the height of 35 ft.; and, in England, 36 ft. is the greatest height that it has yet attained. The trunk, in both countries, is from 5 in. to 6 in. in diameter. The stem is seldom erect but generally inclined, branching, and rising from the root in twos or threes. The leaves are 18 in. or 20 in. long, and 7 in. or 8 in. broad. The flowers are 7 in. or 8 in. in diameter, with large white flaccid petals; they are placed on the extremities of the last year's shoots, have a languid luxurious appearance, and a sweet but heavy odour. The fruit, which is conical, is 5 in. or 6 in. long, and about 2 in. in diameter. It ripens in America about the beginning of October; and in England in fine seasons, about the end of the same month. It is of a beautiful rose colour, and contains usually from 50 to 60 seeds, which should be sown immediately after they are gathered, as otherwise they become rancid and lose their vital qualities; though, if enveloped in moist moss or earth, they may be preserved for several months. This species is very hardy, and can withstand the most rigorous winters, when the summer has been sufficiently hot to ripen the wood thoroughly. As it is a short-lived tree, and consequently flowers early, there is not the same objection to raising plants of it from seed, as there is to raising plants in that manner of M. grandiflòra, which is a long-lived species.

Geography. The umbrella tree, according to Michaux, is first seen in the northern part of the state of New York, and it extends on wooded mountains to Carolina and Georgia, as well as Virginia. Though met with over a great extent of country, it appears only in situations perfectly adapted to its growth, which are always shady, and, where the soil is deep, strong, and fertile. In the lower parts of South Carolina and Georgia, it is found only near the alluvial flats which lie along the banks of the rivers, and there it is accompanied by the Magnòl*ia* grandiflòra, but never by the Magnòl*ia* glaúca, which is confined to situations where, according to Michaux, the soil is black, shallow, and often miry.

History. This species of Magnòl*ia* was brought to England about 1752, and soon after it passed into France, and was cultivated on the Continent generally. In France and Italy it seeds freely; and even in England, at Deepdene in Surrey, self-sown seeds have produced plants. It may now be considered as the commonest of all the magnolias; because, though in point of beauty it is not so popular as M. grandiflòra or M. glaúca, yet, as a peat soil is not essential to it, it is more easily preserved.

Soil and Situation. The soil should be a deep, rich, sandy loam, and the situation sheltered and shaded. A situation exposed to the sun is injurious; and, trained against a wall, the plant suffers extremely. A sheltered glade, in a shrubbery or wood, where it is sufficiently distant from other trees not to be injured by the roots, is the most desirable site.

Propagation and Culture. In the nurseries it is almost always propagated by seeds, but sometimes also by layers. In either case the plants are kept in pots until required for final transplanting.

*Statistics. Magnòl*ia *tripétala in Great Britain.* The largest plants in the neighbourhood of London are at Purser's Cross and at Syon; and they are about 30 ft. high. There is one in the Mile End Nursery 20 ft. high. The largest in England are at Cobham Hall, in Kent, and about 36 ft. high. At Walton House, in Surrey, there are plants 30 ft. high; and at Bowood, in Wiltshire, one 13 ft. high. At Golden Grove, in Pembrokeshire, there is a tree 23 ft. high; and at Croome, in Worcestershire, one 20 ft. high. The tree does not thrive about Edinburgh; and in the north of Scotland it is trained against a wall. In the Perth Nursery there is one, trained against a wall, 16 ft. high; and at Gordon Castle, one 14 ft. high. In Ireland, in the Glasnevin Botanic Garden, there is a standard tree 14 ft. high; and at Pakenham Hall, in the province of Leinster, there is a standard tree which in 10 years has attained the height of 10 ft.

*Magnòl*ia *tripétala in Foreign Countries.* In the Ghent Botanic Garden there is a standard 25 ft. high; and one at Scéaux, near Paris, which has attained the same height in 12 years. At Schwöbber, in Hanover, there is a tree 25 years planted, which is 30 ft. high. The species is in most of the Continental botanic gardens, in France, Belgium, Holland, and the south of Germany, as a standard in the open air; and in the north of Germany, and in Denmark and Sweden, as a green-house plant. It is also in botanic gardens of the south of Italy, but it does not thrive there. Some of the finest trees of this species in Italy are at Monza.

‡ 4. M. MACROPHYˊLLA *Mx.* The long-leaved Magnolia.

Identification. Mich. Bor. Amer., 1. p. 327.; Dec. Prod., 1. p. 80.; Hayne Dend., p. 117.; Don's Mill., 1. p. 83.
Synonymes Large-leaved Umbrella Tree, *Amer.*; Magnòl*ia* Michaúx*ii* Hort.; Magnolier à grandes Feuilles, Magnolier bannanier, *Fr.*; grosseblättrige Bieberbaum, *Ger.*
Engravings. Bot. Mag., 2189.; E. of Pl., 7915.; and our plate in Vol. II.

Spec. Char. Deciduous. Leaves very large, oblong-obovate, somewhat panduriform, cordate at the base, under surface whitish, glaucous. Petals 6—9, ovate. (*Don's Mill.*, i. p. 83.) A tree of the middle size. North America. Flowers white. June and July. 1800. Height 35 ft.

Description. The general appearance of this tree, Michaux observes, greatly resembles that of M. tripétala. The terminal arrangement of the leaves is the same, and it is remarkable that the two trees are almost always found together. In point of size, it exceeds the M. tripétala, both in its leaves and general height; but it is seldom found higher than 35 ft., which exceeds the height of the other by a sixth part only. The body of the tree is covered with a smooth and very white bark, by which, in the winter, when stripped of its leaves, it is readily distinguished from M. tripétala. At this season, also, it may be distinguished by its buds, which are compressed and covered with a soft and silvery down; whereas in M. tripétala they are prominent and rounded at the end. The leaves, in its native country, are 35 in. long, and 9 in. or 10 in. broad; and in vigorous plants, in England, they sometimes even exceed these dimensions. They are borne on petioles, short in comparison with the size of the leaves, and are of an oblong oval shape, pointed at the extremity, and cordiform at the base: their colour is light green above, and glaucous beneath. The flowers are white, and larger than those of any other species of magnolia; for, when fully blown, they are sometimes 8 in. or 9 in. in diameter: they are composed of six petals, longer and broader than those of the umbrella tree. Within the flower, near the bottom of the petals, is a purple spot, 7 or 8 lines in diameter. The flowers diffuse a fragrant odour, and their beauty is heightened by the luxuriant foliage which surrounds them. The fruit is about 4 in. long, nearly cylindrical, and of a vivid rose-colour when arrived at maturity. In the arrangement of the carpels and of the seeds, the fruit resemble those of M. tripétala and M. acuminàta; it should be remarked, however, that it is destitute of the appendages visible on that of the last-mentioned species, especially when it is dry. The seeds of the large-leaved umbrella tree require, in order to preserve their power of germination, the same attention as those of the preceding species. (*Michx.*) The stipules, in this species, and the manner in which they envelope the unexpanded leaves, are interesting subjects of observation, more especially when the leaves are emerging from the bud. The stipules are large, and placed mainly upon petioles of the leaves; yet the office of the stipules borne by the petiole of any leaf is not to envelope and protect that leaf, but the leaf next inward to it. The outermost wrappers of the leaf-buds are (as examination will show) stipules upon the rudiments of petioles. Young plants of this species grow very slowly till they are thorougly established, which will require, in general, two years. The year's shoots may then be from 1 ft. to 2 ft.; so that in ten years a plant may attain the height of 12 ft. or 15 ft. It may be considered a short-lived tree, and, like all such, it comes into flower when young. The largest tree of this species, in England, is 28 ft. 6 in. high.

Geography. This is the rarest of the American species of magnolia. It was generally confounded by the native collectors with the Magnòl*ia* tripétala, till separated from it by Michaux, by whom it was discovered in 1789, in the mountainous regions of North Carolina, 10 miles south of Lincoln town, and 250 miles from Charleston. Extensive researches made in quest of it, in the upper part of the southern states, and east of the Alleghanies, have been unsuccessful. In Tennessee it is found sparingly at intervals of 40 or 50 miles. It appears to delight in cool sheltered situations, where the soil is deep and fertile; and, as already observed, it is constantly attended by the M. tripétala.

History. It was discovered by the elder Michaux, in 1789, but was not introduced into England till imported by the Messrs. Loddiges in 1800. It has rarely, if ever, been propagated in this country by inarching or layers, and very seldom from seeds; and, hence, the plant is very sparingly distributed. In France, it seems to have been introduced about the same time as in England; and it seems to prosper better in the climate of Paris, as there, in the nursery of M. Godefroy, it has ripened seeds, from which, in 1827, young plants were raised. In Britain, young plants are constantly imported from the New York and Philadelphia nurseries.

Soil and Situation. The most suitable situation for this species is one perfectly sheltered on every side, and slightly shaded from the mid-day sun. The soil should be a deep dry sand; at all events, those trees in England which have attained the largest size, stand in soil of this description; our comparatively moist winters rendering such a soil advantageous, by preventing the excess of moisture from rotting the roots, or damping off the plant when young, at the surface of the ground.

Propagation and Culture. Neither this species nor M. tripétala can be readily grafted or inarched on each other, or on any other species, as far as experience has hitherto gone in Britain; probably from the large proportion which the pith bears to the ligneous part in young shoots; nevertheless, according to Bonpland, it has been in one or two cases successfully effected in France. M. Soulange-Bodin, having been unsuccessful in various attempts to inarch M. macrophýlla on M. tripétala, thought of trying it on M. auriculàta; but it only lived a very short time, and then died. It will root by layers with great difficulty; and plants so raised, from their want of vigour, will probably not be of long duration. The only mode worthy of general adoption is, to raise it from seed; and, as these are produced in abundance at Fromont, at the nursery of M. Godefroy, at Ville d'Avry, and at other places in France, there is no necessity for having recourse to any other method. If any species of magnolia, the young shoots of which are so abundant in pith, and the entire plant so liable to die down to the ground and shoot up again, as M. tripétala and M. macrophýlla, is to be grafted at all, the operation ought, as it appears to us, to be performed on the root, which, as in the case of all ligneous plants, is without pith.

Statistics. The largest Magnòl*ia* macrophýlla in England, is that at Arley Hall, the seat of the Earl of Mount Norris. This fine tree is a standard, 28 ft. 6 in. high, with a trunk 6 in. in diameter at a foot from the ground, and a head 17 ft. in diameter. The next largest standard is that at the Duke of Devonshire's villa at Chiswick, which, in 1835, was 22 ft. high. At Harringay there is a tree against a wall, which, in 1835, was 22 ft. high, and, like that at the Duke of Devonshire's, it flowers abundantly every year. It was planted in 1814, and has never received the slightest protection. In the grounds of a villa at Kensington Gore, adjoining the Brompton Nursery, is a standard tree 18 ft. high, which flowers every year. At White Knights there is a standard tree, 20 ft. high, that has been 30 years planted. At Southill, in Bedfordshire, there is a standard, 22 years planted, which is 12 ft. high. The tree stands in the open air in the neighbourhood of Edinburgh and of Dublin; but there are no remarkable specimens. In France, the largest M. macrophýlla is at Fromont, which, in 1835, measured 24 ft., and the branches covered a space of 15 ft. in diameter. It has flowered every year since 1826, and it ripens seeds in October, from which many young plants have been raised. There are plants of this species, of considerable size, at Ville d'Avry, and in several of the other Parisian nurseries. In Germany, the species is a green-house plant, and in the south of Europe it has not yet been generally tried. There are plants of it in the collection at Monza. Plants should always be purchased in pots. The price, in London, of two-years-old seedlings, is 15*s.*; at Bollwyller, ?; and at New York, 1 dollar.

⚘ 5. M. ACUMINA`TA *L.* The pointed-*leaved* Magnolia.

Identification. Lin. Sp., 756. ; Dec. Prod., 1. p. 80. ; Willd. Baum., p. 230. ; Hayne Dend., p. 117. ; Don's Mill., l. p. 83.

Synonymes. M. rústica, and M. pennsylvánica, of some; the blue Magnolia, *Eng.* ; the Cucumber Tree, *U. S.* ; Magnolier acuminé, Magnolier à Feuilles pointées, *Fr.* ; zugespitzer Bieberbaum, *Ger.*

Derivations. This species is called the Cucumber Tree, in America, from its fruit resembling a small cucumber. The other names are translations of the botanic one.

Engravings. Mich. Arb., 3. p. 82. t. 3. ; Sims, Bot. Mag., 2427. ; Hayne, t. 17. ; E. of Pl., 7913. ; and our plate in Vol. II.

Spec. Char. Deciduous. Leaves oval, acuminate, under-surface pubescent. Flowers 6—9-petaled. (*Don's Mill.*, p. 83.) A deciduous tree. North America. Flowers yellowish. May to July. 1736. Height from 30 ft. to 40 ft.

Varieties.

⚘ *M. a.* 2 *Candóll*i *Savi. De Candolle's acuminate*-leaved *Magnolia.*—Leaves ovate, oblong, acute. Flowers greenish. Figured in Savi's *Bibl. Ital.*, p. 224.

⚘ *M. a.* 3 *máxima* Lodd.—Leaves much larger than those of the original species. Introduced by Messrs. Loddiges, and cultivated in different nurseries.

Other Varieties. The Magnòl*ia* acuminàta being frequently raised from seed, and the seedlings varying much in the size of their leaves, and in the presence or absence of pubescence, both on the leaves and wood, it would be easy to select several varieties apparently as distinct as those above mentioned. In the Goldworth Nursery, Woking, Surrey, are some which appear remarkably distinct.

Description. A deciduous tree, in its native country, from 60 ft. to 80 ft in height, with a straight trunk, from 3 ft. to 4 ft. in diameter; numerous branches, and regularly distributed shoots. The leaves are from 6 in. to 7 in. long, and from 3 in. to 4 in. broad, upon old trees, but double that size upon young vigorous-growing plants. Michaux describes them as oval, entire, and very acuminate; but, in the seedlings raised in British nurseries, they are found sometimes ovate, nearly orbiculate, and cordate-acuminate. The flowers, which are 5 in. or 6 in. in diameter, are bluish, and sometimes white, with a tint of yellow. They have but a feeble odour; though, as they are large and numerous, they have a fine effect in the midst of the superb foliage. Plants raised from seeds do not usually produce flowers till they are eight or ten years old, when the tree will probably be from 15 ft. to 20 ft. in height; but plants raised from layers produce flowers in two or three years. The fruit is about 3 in. long, and nearly 1 in. in diameter. It is nearly cylindrical, and often a little larger at the summit than at the base: it is convex on one side, and concave on the other; and, when green, it nearly resembles a young cucumber. The fruit is rose-coloured; and, as in the case of the other species, the seeds, before they drop, remain suspended for some time by long white threads. The wood of this tree is of a fine grain, and of an orange colour.

Geography. The most northerly point at which this tree is found is Niagara, near the Falls, in lat. 43°. It abounds along the whole mountainous tract of the Alleghanies, to their termination in Georgia, over a distance of 900 miles. It is also common on the Cumberland Mountains, which divide the state of Tennessee. The situations peculiarly adapted to its growth, according to Michaux, are the declivities of mountains, narrow valleys, and the banks of torrents, where the atmosphere is constantly moist, and where the soil is deep and fertile. "At the distance of 40 or 50 miles from these mountains, either eastward or westward, the cucumber tree is met with only accidentally upon the steep banks of rivers, where the atmosphere is constantly refreshed by the evaporation from their surface. We may conclude that this tree is a stranger to all the regions north of the river Hudson, and to all the Atlantic parts of the United States, to the distance of 100, 150, and 200 miles from the sea; the nature of the soil, and the extreme heat of the climate in summer, being utterly uncongenial to its growth. It is also rare in the parts of Kentucky and West Tennessee which are most remote from the mountains, where the face of the country is less uneven." (*Michaux.*)

History. M. acuminàta was first discovered by John Bartram, and was sent by him to Mr. Peter Collinson, in 1736. Being readily propagated by layers, and very hardy, it was soon spread extensively through European gardens; and there are now numerous trees of it in Britain, France, and in the north of Italy, from 40 ft. to 60 ft. in height.

Properties and Uses. The tree being comparatively rare in its native country, its timber is not in general use. Where it can be obtained, it is employed in joinery and cabinet-making; and, from its size and lightness, large trunks are selected for scooping out into canoes. The inhabitants of the Alleghanies gather the fruits about midsummer, when they are half ripe, and steep them in whisky: a glass or two of this liquor, which is extremely bitter, is considered to be a preventive against the autumnal fevers. In Europe, the tree can only be considered as ornamental; though its fruit might no doubt be applied in the same manner as in America.

Soil and Situation. A free, deep, and rather moist soil answers best for this species; but, as it is much hardier than any of the other species in this section, it will grow in almost any soil that is moderately free, and not overcharged with moisture. To attain a large size, it requires a sheltered situation, and a deep rich soil; but it will grow in exposed sites, and even flower there freely.

Propagation and Culture. It is generally propagated in the London nurseries by layers, the plants so produced flowering much sooner than seedlings; but the latter, as they make far more durable plants, should always be preferred when this species is used as a stock to graft or inarch others on. It is so used very generally, not only for M. auriculàta and cordàta, but for M. conspícua and Soulange*àna*. The plants are, in some nurseries, grown in the free soil; but it is always preferable to rear them in pots; because, in that case, they are not checked by transplanting, and at least a year is gained in their growth.

*Statistics. Magnòl*ia *acuminàta in Great Britain.* The largest tree stood in the garden of Lord Petre, at Thorndon Hall in Essex; but it was cut down some years ago, and its exact dimensions we have not been able to ascertain; though we have seen a section of the trunk which exceeded 27 in. in diameter: there is one still standing in the same park, which is 37 ft. high, with a trunk 7 ft. 2 in. in circumference. In Thompson's Nursery at Mile End, and in the arboretum at Kew, there were formerly trees between 30 ft. and 40 ft. high. At Syon there is one 49 ft. high, see our plate in Vol. II.; and at White Knights there are many trees of this species from 20 ft. to 35 ft. high, all planted within the last 30 years. At Cobham Hall, in Kent, there is a tree 17 years planted, which is 30 ft. high; and there is one of the same height at Eastwell Park, in the same county. North of London there are some hundreds of trees of which we have received the dimensions. They grow in various soils, clayey loam, sand, prepared soil, &c.; and, in 10 years, generally acquire the height of 15 ft., and in 20 years, of 30 ft. In Scotland, the tree is usually trained against a wall; but in the neighbourhood of Dublin there is a tree, 15 ft. high, growing as a standard in the Glasnevin Garden, and another, equally high, at Cypress Grove. At Oriel Temple there is a tree 35 years planted, which is 17 ft. high; and one, not quite so old, at Dundalk, 27 ft. high, with a trunk 20 in. in diameter, and a head 85 ft. in circumference. In England these trees flower freely every year, but not quite so much so in Ireland, owing to the wood not ripening so thoroughly.

*Magnòl*ia *acuminàta in Foreign Countries.* There are various trees of this species, in the neighbourhood of Paris, from 20 ft. to 30 ft. high; and in Belgium there are a number still higher. In Germany, the largest tree that we have had an account of is at Schwöbber, where it has attained the height of 25 ft. It stands in the open air at Berlin, Dresden, and Vienna, but never acquires a timber-like size as a standard. In the Berlin Botanic Garden it is 25 ft. high against a wall. In Italy, there are trees of this species in the English garden at Caserta, and in most of the botanic gardens; but, as already observed, the deciduous American magnolias do not thrive in the south of Europe, except in particular localities. In North America, there is a tree of this species in Bartram's Botanic Garden, Philadelphia, 80 ft. high, which supplies a great part of the seeds sent yearly to Europe.

Commercial Statistics. The price of plants, about London, is 5*s.* each, and of seeds 2*s.* 6*d.* an ounce; at Bollwyller, from 5 francs to 10 francs each plant; in New York, plants are 25 dollars a hundred, or 30 cents each, and seeds are 9 dollars a quart.

¥ 6. M. (? ACU.) CORDÀTA *Mx.* The heart-*leaved* Magnolia.

Identification. Mich. Bor. Amer., 1. p. 328.; Dec. Prod., 1. p. 80.; Hayne Dend., p. 118.; Don's Mill., 1. p. 83.

Synonymes. The heart-leaved Cucumber Tree, *Amer.*; Magnolier à Feuilles en Cœur, *Fr.*; herzblättriger Bieberbaum, *Ger.*

Engravings. Bot. Cab., 474.; and our plate in Vol. II.

Spec. Char. Deciduous. Leaves heart-shaped, somewhat ovate or cordate, acute, under surface tomentose, upper surface smooth. Petals 6—9, oblong. (*Don's Mill.*, i. p. 83.) A middle-sized tree. North America. Flowers white and purple, scented. June and July. 1800.

Description. This tree, in its native country, attains the height of 40 ft. or 50 ft., with a trunk 12 in. or 15 in. in diameter, straight, and covered with a rough and deeply furrowed bark. Its leaves, which are borne upon petioles, are from 4 in. to 6 in. in length, and from 3 in. to 5 in. wide, smooth and entire. The flowers, which appear in April, are yellow, with the interior of the petal longitudinally marked with several reddish lines. They are from 3 in. to 4 in. in diameter, and are succeeded by fruit about 3 in. long, and nearly 1 in. in thickness, of a similar form to those of the preceding species. The wood is light and soft, and is used in joinery and cabinet-making, where it can be found; but the tree is not common in America. In Britain, the tree attains the height of 20 ft. or 30 ft., and flowers freely.

Geography. Found on the banks of the river Savannah, in Upper Georgia, and on those of the streams which traverse the back parts of South Carolina. The nearest point to the sea at which the younger Michaux found it, was in the plantation of Goodrest, 12 miles from Augusta, along the sides of Horn Creek. The tree is rare in Upper Georgia, never making its appearance in forests, but only in isolated situations, along the banks of rivers.

History, &c. This tree appears to have been discovered by the elder Michaux. It was brought to England in 1801 by Mr. Lyon; and the original tree, not 15 ft. high, still exists in the nursery of Messrs. Loddiges. This tree agrees in very few particulars with Michaux's description, and, taken together with the various and very opposite appearances assumed by the seedlings of M. acuminàta, convinces us that M. cordàta is nothing more than a variety of M. acuminàta. The soil and situation may be considered the same as in the preceding species; but, as this race or variety seems, in its native country, to inhabit higher and drier localities than M. acuminàta, it may probably be placed in still more exposed situations than that species in Britain.

Statistics. Though this species is by no means uncommon in British gardens, we are not aware of many large specimens of it. The highest we know of is at Claremont, where it has attained the height of 27 ft. in sandy loam on clay. At Luscombe, in Devonshire, there is a tree 8 years planted, which has attained the height of 14 ft.; and at West Dean, in Sussex, is one 9 years planted, which is 13 ft. high. At High Clere, in a situation upwards of 500 ft. above the level of the sea, a plant 12 years planted is 12 ft. high. In the Perth Nursery, one 8 years planted is 15 ft. high against a wall. There are trees as standards at Oriel Temple, Terenure, Charleville, and various other places in Ireland. At Paris, there are trees at Sceaux, and in most of the nurseries and botanic gardens. Plants, both seedlings and layers, are not unfrequent in the nurseries. The price, in London, is from 7*s.* 6*d.* to 21*s.*; at Bollwyller, 6 francs; in New York, 1 dollar.

‡ 7. M. AURICULA'TA *Lam.* The auricled-*leaved* Magnolia.

Identification. Willd. Sp., 2. p. 1258.; Dec. Prod., 1. p. 80.; Hayne Dend., 117.; Don's Mill., 1. p. 83.
Synonymes. M. Fràseri Walt.; M. auriculàris *Salisb.*; Indian Physic, and long-leaved Cucumber Tree, *Amer.*; Magnolier auriculé, *Fr.*; geöhrter (eared) Bieberbaum, *Ger.*
Engravings. Bot. Mag., 1206.; E. of Pl. 7916.; and our plate in Vol. II.

Spec. Char. Deciduous. Leaves smooth, under surface somewhat glaucous, spathulately obovate, cordate at the base, with blunt approximate auricles. Sepals 3, spreading. Petals 9, oblong. (*Don's Mill.*, i. p. 83.) A tree of the middle size. North America. Yellowish-white flowers. April and May. 1786.

Description. This tree attains the height of from 40 ft. to 45 ft., with a straight trunk 12 in. or 15 in. in diameter, often undivided for half its length; the branches spread widely, and ramify but sparingly; and this circumstance, Michaux observes, gives the tree a very peculiar air, so that it may readily be known at a distance, even in winter. The leaves are of a light green colour, of a fine texture, 8 in. or 9 in. long, and from 4 in. to 6 in. broad: on young and vigorous trees they are often one third, or even one half, larger. They are smooth on both surfaces, acuminate at the summit, widest near the top, and narrowest towards the bottom. The base is divided into rounded lobes, whence is derived the specific name of auriculàta. The flowers are 3 in. or 4 in. in diameter, of a milky white, of an agreeable odour, and are situated at the extremity of the young shoots, which are of a purplish red, dotted with white. The fruit is oval, 3 in. or 4 in. long, and, like that of Magnòl*ia* tripétala, of a beautiful rose colour when ripe. They differ from those of the other species by a little inferiority of size, and by a small appendage which terminates the carpels. Each carpel contains one or two seeds. The wood is soft, spongy, very light, and unfit for use. The bark is grey, and always smooth, even on the oldest trees. When the epidermis is removed, the cellular integument, by contact with the air, instantly changes from white to yellow. The bark has an agreeable aromatic odour, and an infusion of it in some spirituous liquor is employed as an excellent sudorific in rheumatic affections. (*Michaux.*) In England, annual shoots of young plants are from 1 ft to 2 ft. or more in length; and the height which the tree usually attains in 10 years is from 10 ft. to 15 ft. The highest tree within ten miles of London is at Messrs. Loddiges's, where it has attained the height of 30 ft. The following extract from Bartram's *Travels* will be read with interest. "This exalted peak I named Mount Magnolia, from a new and beautiful species of that celebrated family of flowering trees, which here, at the cascades of Falling Creek, grows in a high degree of perfection. I had, indeed, noticed this curious tree several times before, particularly on the high ridges betwixt Sinica and Keowe, and on ascending the first mountain after leaving Keowe, where I observed it in flower: but here it flourishes and commands our attention. This tree (or perhaps rather shrub) rises 18 ft. to 30 ft. in height. There are usually many stems from a root, or source, which lean a little, or slightly diverge from each other, in this respect imitating the Magnòl*ia* tripétala; the crooked wreathing branches arising and subdividing from the main stem without order or uniformity; their extremities turn upwards, producing a very large rosaceous, perfectly white, double, or polypetalous, flower, which is of a most fragrant scent. This fine flower sits in the centre of a radius of very large leaves, which are of a singular figure, somewhat lanceolate, but broad towards their extremities, terminating with an acuminated point, and backwards they attenuate, and become very narrow towards their bases, terminating that way with two long narrow ears, or lappels, one on each side of the insertion of the petiole. The leaves have only short footstalks, sitting very near each other, at the extremities of the floriferous branches, from which they spread themselves after a regular order, like the spokes of a wheel; their margins touching, or lightly lapping upon, each other, form an expansive umbrella, superbly crowned or crested with the fragrant flower, representing a white plume. The blossom is succeeded by a very large crimson cone, or strobile, containing a great number of scarlet berries, which, when ripe, spring from their cells, and are, for a time, suspended by a white silky web or thread. The leaves of those trees which grow in a rich humid soil, when fully expanded and at maturity, are frequently above 2 ft. in length, and 6 in. or 8 in. where broadest. I discovered, in the maritime parts of Georgia, particularly on the banks of the Alatamaha, another new species of Magnòl*ia* [M. aur. pyramidàta], whose leaves were nearly of the figure of those of this tree; but they were much less in size, not more than 6 in. or 7 in. in length, and the strobile very small, oblong, sharp-pointed, and of a fine deep crimson colour; but I never saw the flower. These trees grow straight and erect, 30 ft. or more in height, and of a sharp conical form, much resembling the cucumber tree [M. acuminàta] in figure." (*Bartram's Travels*, p. 338.)

Geography. This species appears to be confined to a particular part of the Alleghanies, nearly 300 miles from the sea. It is found on the steep banks of the rivers which rise in these lofty mountains. It appears to be very sparingly distributed; the distance of 150 miles occurring, in some cases, between the spots where it is to be met with. Michaux says, "I have no where found it so abundant as on the steepest part of the lofty mountains of North Carolina, particularly those which are called by the inhabitants, Great Father Mountains, and Black and Iron Mountains." The soil of these mountains is brown, deep, and of an excellent quality; and the tree is found to multiply so fast from seed, that a thousand plants might be collected in a single day. The atmosphere, in such situations, is continually charged with moisture, from the number of torrents which rush down from the summits.

History. This tree was discovered by Bartram, from whom it was first received in England by Messrs. Loddiges, in 1786. It was, probably, soon afterwards sent to France; because we find Madame Lemonnier, the widow of Michaux's patron and friend, describing a tree of this species in her garden in 1800, which was 9 ft. high, and had already flowered. As it is of difficult propagation, it is not very generally distributed; but it is found in the principal botanic gardens of the middle of Europe, and in first-rate nurseries.

Soil, Situation, &c. The soil, as we learn from Michaux, ought to be free and deep; and the situation low, sheltered, and moist, rather than dry. As seeds are not very easily procured, the common mode of propagation is by layers, or by inarching on M. acuminàta. In both modes, two years are required before the plants can be separated from the parent stock. If the demand for plants were adequate, abundance of seeds might, no doubt, be procured from America.

Statistics. The parent tree is at Messrs. Loddiges. In the Exotic Nursery, King's Road, there is a tree of this species 16 ft. high; and in the Hammersmith Nursery there is one 18 ft. high. At Sherwood, one 18 years planted is only 12 ft. high; at White Knights, one 33 years planted is 26 ft. high; and in the Killerton Nursery, Devonshire, one 8 years planted is 14 ft. high. At Cobham Hall, in Kent, one 17 years planted is 25 ft. high; in Knap Hill Nursery there is a tree 20 ft. high; and at Barton, in Suffolk, one only 10 years planted which is 19½ ft. high. There are trees of this species in Scotland and Ireland, but they are chiefly trained against walls. There are several in the gardens about Paris, and some at Scéaux, which have attained the height of 20 ft. In the botanic garden at Rouen the height is 10 ft. In the botanic garden at Ghent there is a specimen 22 ft. high. In Germany, M. auriculàta is either trained against a wall, or treated as a green-house plant. The price of a single plant, about London, is from 7*s*. 6*d*. to 21*s*.; at Bollwyller, 10 francs; in New York, 1 dollar.

¥ 8. M. (? AUR.) PYRAMIDA`TA *Bartr.* The pyramidal-*headed* Magnolia.

Identification. Mich. Bor. Amer., 1. p. 328.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 83.
Engravings. Bot. Reg., t. 407.; E. of Pl. 7917.; and our plate in Vol. II.

Spec. Char. Deciduous. Leaves smooth, the same colour on both surfaces, spathulate, obovate, cordate at the base. Auricles spreading. Sepals 3, spreading. Petals 9, lanceolate, pointed. (*Don's Mill.*, i. p. 83.) A low tree. North America. White flowers. May and June. 1811. Height 20 ft.

Description, History, &c. This tree, which is found in the western parts of Carolina and Georgia, resembles the preceding species in every particular (except size) so closely, that we have not the least doubt of its being only a variety of it, or, at least, its bearing the same relation to that species which M. cordàta does to M. acuminàta. It has been found in only two or three localities. One of these is on the banks of the Alatamaha river in Georgia, 40 miles south of Savannah, where it was discovered by M. le Conte. (See *Gard. Mag.*, vol. viii. p. 288.) It was brought to England in 1818 by Mr. Lyon; and the original tree still exists in Messrs. Loddiges's nursery. It is extremely difficult to propagate (which is done by inarching on M. auriculàta); and it is, in consequence, very sparingly distributed over the country. Plants, about London, cost 21*s.* each; at Bollwyller, 15 francs; in New York, ?.

§ ii. *Gwillímia Rott. in Dec. Syst.*

Derivation. *General Gwillim*, some time governor of Madras. (*Don's Mill.*, 1. p. 83.)

Sect. Char. Asiatic species, generally with two opposite spathe-like bracteas enclosing the flower-bud. Anthers bursting inwards. Ovaries somewhat distant. Perhaps the species of this section, with one bractea, should have been given among the michelias. It is, however, evident, that none of them are true magnolias. (*Don's Mill.*, i. p. 83.)

♆ 9. M. CONSPI′CUA *Salisb.* The *Yulan, or* conspicuous-*flowered* Magnolia.

Identification. Dec. Prod., 1. p. 81.; Don's Mill. 1., p. 83.
Synonymes. M. prècia *Correa*; M. *Yùlan* Desf.; Yu lan, *Chinese*; the Lily-flowered Magnolia; Magnolier Yulans, *Fr.*; Yulans Bieberbaum, *Ger.*
Derivations. The epithet prècia was given to this magnolia by M. Correa, because it produces its flowers before its leaves. Yu lan signifies the lily tree.
Engravings. Bot. Mag., 1621.; Otto and Hayne, t. 72.; E. of Pl., 7907.; our *fig.* 34. and the plate of this species in Vol. II.

Spec. Char. Leaves obovate, abruptly acuminated, younger ones pubescent, expanding after the flowers. Flowers erect, 6—9-petaled. Styles erect. (*Don's Mill.*, i. p. 93.) A middle-sized tree in China. Flowers white. Feb. to April. Introduced in 1789. Height from 30 ft. to 40 ft.

Varieties.

♆ *M. c.* 2 *Soulangeàna.* *Soulange's conspicuous*-flowered *Magnolia.*

Synonymes. M. Soulange*àna* An. Hort. Soc. Par., Swt. Fl.-Gard., Don's Mill.; Magnolier de Soulange, *Fr.*
Engraving. M. Soulange*àna* Swt. Brit. Fl.-Gard., t. 260.

Description. The leaves, wood, and general habit of the tree bear so close a resemblance to those of M. conspícua, that, when the plant is not in flower, it is almost impossible to distinguish it from that species. The flowers resemble in form those of M. purpùrea var. grácilis or of M. purpùrea, and the petals are slightly tinged with purple. It was raised at Fromont, near Paris, from the seeds of a plant of M. conspícua, which stood near one of M. purpùrea, in front of the château of M. Soulange-Bodin; the flowers of the former of which had been accidentally fecundated by the pollen of the latter.

♆ *M. c.* 3 *Alexandrìna Hort.* *The* Empress *Alexandrina's conspicuous*-flowered *Magnolia.*—This variety so closely resembles the preceding one, as not to be distinguishable from it otherwise than by its flowering somewhat earlier. It was originated at Paris a few years after the preceding variety, and sent to London by the Parisian nurserymen in 1831.

♆ *M. c.* 4 *speciòsa* Hort. *The showy conspicuous*-flowered *Magnolia.*

— This is another variety similarly originated, and scarcely, if at all, distinguishable from the last.

♆ *M. c.* 5 *citriodòra* Hort. *The Lemon-scented conspicuous*-flowered *Magnolia.* — This variety was raised by M. Parmentier of Enghien, but is little known; and, we believe, wholly without merit as a new variety. There are plants of it in the Exotic Nursery, King's Road, Chelsea, which Mr. Knight considers as differing very little from M. conspícua.

Other Varieties of M. conspícua. This species, as will hereafter appear, has ripened seeds in various places; and, as it fertilises readily with M. purpùrea and M. grácilis, many new varieties may be expected when the attention of cultivators is more especially directed to the subject. *M. c. Norbértii* is a seedling variety, of which there is a plant in the garden of the Horticultural Society, which has not yet flowered. The plants raised from seed of M. c. Soulange*àna* at Fromont may be productive of something new, as may those raised by Mr. Curtis at Glazenwood, and by Mr. Ward at White Knights. If Signor Manetti succeeds in raising plants from the seeds of M. c. Soulange*àna*, which have ripened at Monza, he also may introduce some new varieties.

Description. This is a very showy tree, distinguishable from all the other magnolias of both sections, by its flowers being of a milk white, and expanding before any of the leaves. The tree assumes a regular conical shape, with a grey bark and numerous branches and twigs, which generally have a vertical, rather than a horizontal, direction; so that a large tree of this species would probably be more fastigiate than any of the others. The young shoots are from 1 ft. to 18 in. in length, and the tree, in ten years, will attain the height of from 10 ft. to 15 ft., flowering the second or third year after grafting. The size of the full-grown tree, in its native country, is said to be from 40 ft. to 50 ft.; the highest which we know of in England is at Eastwell Park, in Kent, which, in 1825, appeared to be upwards of 30 ft.

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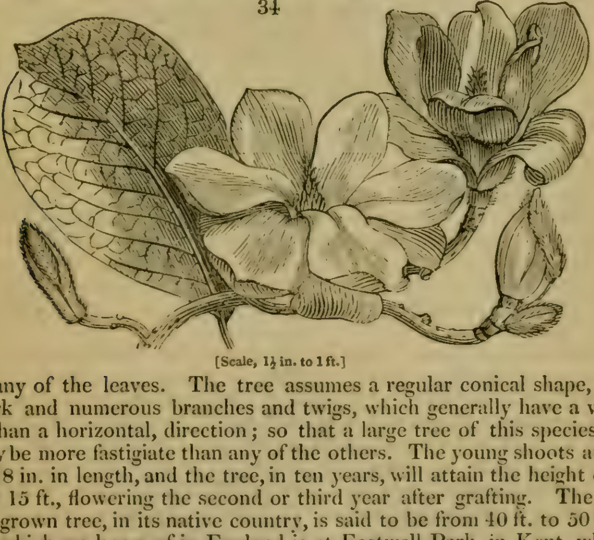

[Scale, 1½ in. to 1 ft.]

Geography and History. This tree is said to be a native of the southern provinces of China; and to be extensively cultivated there in the gardens of the emperor, and in those of all eminent persons who can afford to procure it. It began to be cultivated in China in the year 627; and from that time it has always held the very first rank, as an ornamental tree, in their gardens. It is not only planted in the open ground, and allowed to attain its full size, but dwarfs are kept in pots and boxes, and forced throughout the winter, so as to keep up a perpetual supply of bloom in the apartments of the imperial palace. So highly is this tree valued, that a plant in flower, presented to the emperor, is thought a handsome present, even from the governor of a province. In very severe winters, the trunks of the trees in the open air are sometimes wrapped round with straw ropes; but it never requires any other protection, even in the climate of Pekin. The tree was introduced into England by Sir Joseph Banks in 1789; but it was many years before it attracted much attention, being considered as requiring a green-house or conservatory. So little was it known in 1807, that it is not enumerated among the magnolias described in Martyn's *Miller's Dictionary*, published in that year. Within the last twelve years, it has been discovered to be nearly as hardy as the American species, and it is now most extensively cultivated in the nurseries, both in Britain and on the Continent, and finds a place in every collection. It flowers freely every year, as a standard, in the neighbourhood of London, when the wood has been properly ripened during the preceding summer: and, at White Knights, in England; at Fromont, and various other places, in France; and at Monza, in Italy, it has ripened seeds from which young plants have been raised. Some of the flowers having been fecundated with the pollen of M. purpùrea or grácilis, some hybrid varieties have been produced, of which the most beautiful is M. c. Soulange*àna*.

Properties and Uses. Besides its value as an ornamental plant, the Chinese pickle the flower-buds, after having removed the calyx, and use them for flavouring rice. Medicinally, the seeds are taken in powder, in colds and inflammations of the chest. It is also regarded as stomachic; and water, in which it has been steeped, is used for bathing the eyes when inflamed, and for clearing them of gum. The Chinese poets call the tree the symbol of candour and beauty. (*N. Duh.*, i. p. 225.)

Soil and Situation. A rich sandy loam seems to suit this species best; but it will grow in any deep free soil, properly drained, and moderately enriched. The situation, when it is to be treated as a standard, ought to be sufficiently open to admit of ripening the wood in autumn, and yet not so warm as to urge forward the flower-buds prematurely in spring, as they are very liable to be injured by frost; from which, however, they may be protected by a very slight covering (during nights and frosty days) of gauze or bunting, stretched over the tree horizontally and supported by posts. Against a wall, the tree shows itself in its greatest beauty; and there it can easily be protected, by a projecting coping, from the severest weather ever experienced in the neighbourhood of London. In warm situations, sloping to the south or south-east, the tree has a fine effect planted in front of a bank of evergreens; and, indeed, wherever it is planted, evergreens should be placed near it, and, if possible, so as to form a back ground, on account of the flowers expanding before the tree is furnished with any leaves.

Propagation and Culture. The species and all the varieties are propagated by layers, or by inarching on the Magnòl*ia* purpùrea, or on the M. acuminàta. When grafted on M. purpùrea, the tree is comparatively dwarfed, by which it is rendered very convenient for use as a shrub, or for growing in pots; but, when it is intended to form a tree, it should either be grafted on M. acuminàta, or raised from layers or seeds. It generally requires two years before the plants can be separated from the parent stock. Some plants of this species have been raised from seed ripened in Europe; and we have no doubt that, when this magnificent tree becomes better known and more generally in demand, it will be raised in this way as extensively as M. acuminàta and M. glaúca are at present.

Statistics. An original imported plant, against a wall at Wormleybury, measured, in April, 1835, 27 ft. high, covered a space laterally of 24 ft., and had on it, at that time, 5000 flowers! In Lee's Nursery there are several plants above 20 ft. high, as standards, which flower magnificently every year. At Harringay there is a tree of M. conspícua 25 ft. high, against a wall; and in the same garden there is one of M. c. Soulange*àna*, 6 years inarched upon a strong plant of M. cordàta, which is 20 ft. 6 in. high, the branches extending over a space 16 ft. in diameter, and the diameter of the trunk, at a foot from the ground, being 1 ft. 1 in. In the Kensington Nursery there is a tree of the same height (*fig.* 35.), of which we had a drawing made in the first week in April, 1827, when it was covered with 1100 blossoms. There is a large

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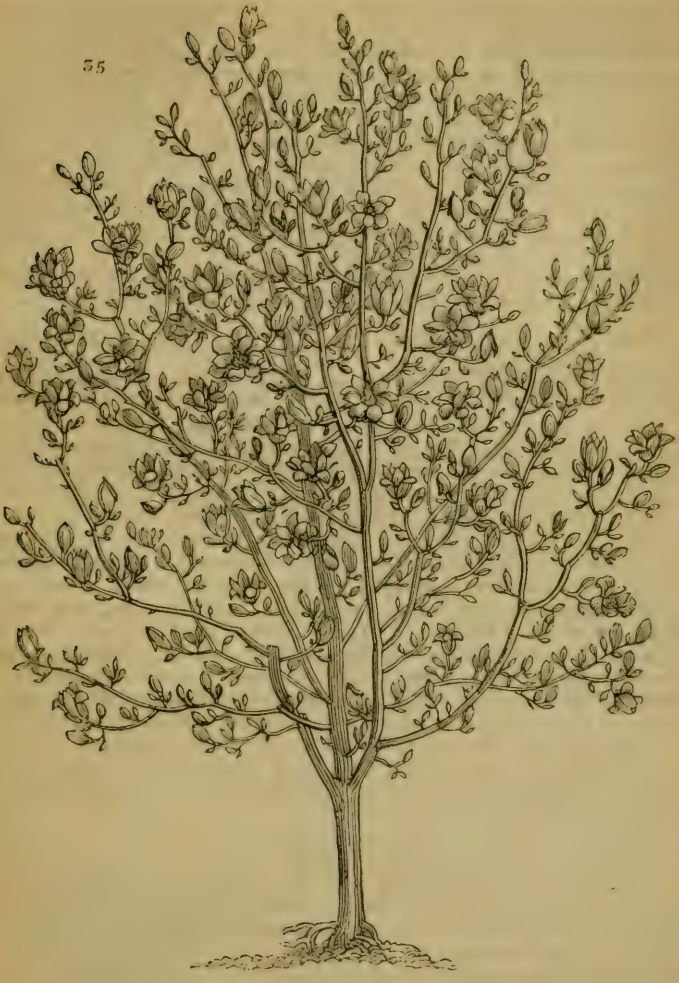

[Scale, ½ in. to 1 ft.]

tree at Cashiobury; and several at White Knights, one of which, 16 ft. high, has ripened seeds. At Farnham Castle, in Hampshire, one 10 years planted is 16 ft. high; and at Cobham Hall, in Kent, one 16 years planted is 20 ft. high. The largest M. c. Soulange*àna* in the neighbourhood of London is in Brown's Nursery at Slough, where it has attained the height of 15 ft. in less than ten years, and is thought by Mr. Brown to be rather more hardy than M. conspícua. At High Clere, on an elevated exposed situation, M. c. Soulange*àna* has attained the height of 7 ft. 6 in. in 4 years, as a standard. M. conspícua grows freely, against a wall, in all the low districts of Scotland; and, as a standard, in the neighbourhood of Dublin. In the neighbourhood of Paris, the largest plant of M. conspícua is at Fromont. It measured, in 1835, 40 ft. high; and the circumference of the trunk, at 2 ft. from the ground, was more than 2 ft.; and the diameter of the space covered by the branches is 24 ft.; it flowers magnificently every year, at the end of March and beginning of April, and the odour of the flowers is perceived at a great distance. This is the tree, the ripened seeds of which produced M. c. Soulange*àna*. The original plant of M. c. Soulange*àna*, at Fromont, is not more than 12 ft. high, and, though it has flowered every year for several years past, it did not ripen seeds till 1834. These seeds have been sown; and M. Soulange-Bodin informs us that he expects some interesting new sorts from them. In the botanic garden at Ghent there is a standard tree of M. conspícua 22 ft. high. In Germany, M. conspícua is trained against a wall, or kept in the conservatory; and in Italy, and the South of Europe, it has not been long planted; though both the species, and the var. M. c. Soulange*àna*, are at Monza, where, as before noticed, M. conspícua has ripened seeds; as has also, as Signor Manetti informs us, M. c. Soulange*àna*.

Commercial Statistics. The price of M. conspícua in the London nurseries is from 2*s*. 6*d*. to 5*s*. a plant; at Bollwyller, 10 francs; in New York, ?.

10. M. PURPU`REA *Bot. Mag.* The purple-*flowered* Magnolia.

Identification. Sims, in Bot. Mag.
Synonymes. M. obovàta *Thun.*; M. díscolor *Vent.*; M. denudàta *Lam.*; the obovate-leaved Magnolia; Magnolier discoloré *Bon. Jard.*, and Magnolie bicoloré *Dun.*, *Fr.*; rothe Bieberbaum, *Ger.*
Engravings. Sal. Par., t 87.; Bot. Mag., t. 390.; E. of Pl., 7908.; and our *fig.* 36.

Spec. Char. Deciduous. Leaves obovate, acute, reticulately veined; almost smooth. Flowers erect, of 3 sepals and 6 obovate petals; styles very short. (*Don's Mill.*, 1. p. 84.) A shrub from Japan, with flowers purple on the outside, and white within. March, April, and May. 1790.

Varieties. In De Candolle's *Prodromus*, and in Don's *Miller*, three varieties are described: *M. p. denudàta* Lam., distinguished by the flowering branches being without leaves; *M. p. díscolor* Vent., which is said to be rather more tender than the species; and *M. p.* l*iliflòra* Lam., the petals of which are white on both sides. These varieties were originally described by Kæmpfer; but, as far as we know, none of them are in British gardens. Several plants of this species having been raised from seed ripened in this country, the plants may exhibit slight shades of difference, as has been the case with certain seedlings raised in the Brentford Nursery; but, as far as we have observed, none of these are worth keeping distinct. The only variety which we consider truly distinct is *M. p. grácilis*, considered as a species by Salisbury and other botanists, but which, we are convinced, is nothing more than a race, or a variety.

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Description. A deciduous shrub, attaining, in the gardens about London, the height of from 6 ft. to 10 ft. in as many years, and seldom growing much higher as a bush. The stems are numerous, but not much branched; the leaves are large, of a very dark green; and the plant produces a profusion of flowers, which do not expand fully till a day or two before they drop off; and which, unless the weather is warm, do not expand at all, but wither on the plant, and disfigure it. The flowers are large, more or less purple (according to the season, but never wholly dark purple) without, and always white within. The bark, when bruised, has an aromatic odour. It is a very ornamental species, and no garden ought to be without it.

Geography, History, &c. Found wild in Japan; and cultivated there, and in China, in gardens. It was discovered by Thunberg, and imported by him into England, in 1790. It has since been generally distributed thoughout the botanic and first-rate private gardens of Europe. About London and Paris, it is not only propagated for sale as a flowering shrub, but as a stock for grafting other species on, even of the tree kinds: such as M. conspícua, cordàta, and others. In the north of France, and in Germany, it is generally treated as a green-house plant.

Soil and Situation. This species is generally considered as requiring a mixture of heath soil, or sandy peat, with loam; but in many gardens about London it succeeds perfectly both in sand and clay; the latter soil being rendered free by sand, leaf mould, or manure, and drainage. The situation, when the plant is treated as a bush, ought to be open, in order that the wood may be ripened; and the plant should be detached, it order that it may be covered with foliage and blossoms on every side. North of London, in most situations, it requires a wall, and few plants are more deserving of one. Against a wall, it will reach the height of 15 ft. or 20 ft.

Propagation and Culture. In the London nurseries, it is generally propagated by layers; but it will also strike by cuttings, both of the ripened and the herbaceous wood. The stools are generally formed in pits; or, if in the open ground, they are generally covered with mats during winter. Seeds have been ripened both in England and France; and from these plants have been raised in some few nurseries. The plants, whether raised from layers, cuttings, or seed, should always be kept in pots till wanted for final planting.

Statistics. There are fine plants of this species, trained against walls, at Harringay, Wormleybury, White Knights, and numerous other places. The largest bushes in the neighbourhood of London are in the Mile End Nursery; and there are very handsome specimens in the Hammersmith Nursery. There is one 20 ft. high in the garden of the Rev. J. Mitford, at Benwell in Suffolk, which, we believe, is the largest in England. Price, in London, from 1*s.* 6*d.* to 2*s.* 6*d.* a plant; at Bollwyller, 5 francs; in New York, ?.

❦ 11. M. (? P.) GRA´CILIS. The slender-*growing* purple-*flowered* Magnolia.

Synonymes. Magnŏl*ia* K*ò*bus Kæmpf., Dec., and Don.; M. glaúca var. *a* *Thun. Fl. Jap.*; M. tomentŏsa *Thun. in Linn. Soc.*; Sidi Kobusi, *Japanese*; Magnolier grêle, *Fr.*; filziger Bieberbaum, *Ger.*
Derivations. Kobus, or Sidi Kobusi, is the name of the plant in Japan. It is named grácilis from its slender habit of growth; and tomentŏsa from the comparatively downy surface of the leaves. It was called M. glaúca by Thunberg, because he originally supposed it to be a variety of the M. glaúca of North America. The French and German names signify the same as the specific one.
Engravings. Kæmpf. Ic., t. 42.; Par. Lon., 87.; E. of Pl., 7909.

Description. In its native country it is a small tree with rough bark; but in England it is a somewhat delicate shrub, with slender stems and branches, growing rather more erect and fastigiate than M. purpùrea. The leaves are of the same form, but a little longer, and always of a decidedly paler green. The young leaves are pubescent underneath, as are the young shoots. In England, though this kind cannot be considered as a tree, yet it has a different habit of growth from M. purpùrea; and, instead of, like it, forming a broad spreading bush, it is a narrow, upright, slender, fastigiate-growing one. The bark has the same odour as that of M. purpùrea. The two main points of difference between it and M. purpùrea are, the paler green, and somewhat narrower shape, of the leaves; and the longer and more slender form of the flower, the points of the petals of which are slightly turned back; while the flower of M. purpùrea is more cup-shaped, and the petals at the points are rather turned inwards. The petals of M. grácilis are exteriorly of an entirely dark purple, whereas those of M. purpùrea melt off into white at their upper extremities.

Geography, History, &c. It is a native of Japan, where it is said by Kæmpfer to attain the size of a cherry tree. It was brought to England in 1804, but is not very common, probably from its being very generally confounded with M. purpùrea. Its management, in all respects, is the same as that of the species, except that it is, perhaps, somewhat more tender. The largest plant that we know of is in the conservatory at White Knights, where it forms a narrow bush about 10 ft. high. It is kept in the conservatory there, not on account of its tenderness, but because it was considered to be a conservatory plant when it was first planted; and it is now much too large to be removed with safety. There are bushes of this variety in the open border, both in the Hammersmith Nursery and at Mile End, between 3 ft. and 4 ft. high, and 2 ft. and 3 ft. broad, which flower freely every year, without any protection whatever. Price, in the London nurseries, 5*s.*; at Bollwyller, ?; and in New York, ?.

App. i. *Half-hardy Magnolias.*

*Magnòl*ia *fuscàta* Andr., figured in *Bot. Mag.*, t. 1008., and introduced from China in 1789, is common in conservatories. At Claremont it forms a large evergreen bush, 15 ft. high; and at Taplow Court, a bush 10 ft. high. It flowers in April, May, and June: its fragrance is much more grateful than that of the other magnolias, and not at all oppressive. The plant has been tried against a conservative wall; and also, in the Goldworth Nursery, in the open ground, as a bush; and in both situations, when once firmly established, it is found to endure moderate winters with a little protection. On account of its being an evergreen, and from the fragrance of its flowers, which are of a dark brownish red or purple, tinged with yellow in the inside of the petals, it is a very desirable plant. There are two other species, natives of China (M. *anonæ*fòlia and M. pùmila), also evergreens, and treated as green-house or stove plants; but we have not heard of either of them having been tried out. Possibly, they may prove nearly as hardy as M. fuscàta.

App. ii. *Additional Magnolias.*

It is highly probable that there are other species of the genus Magnòl*ia*, in the mountainous regions of India, and in China, which will endure the open air in Britain, though none of these have yet been described by botanists, with the exception of some by Dr. Wallich, which are now considered to belong to Michèl*ia*. Some expected additions of genera closely allied to Magnòl*ia* will be noticed in the concluding section of this chapter. Possibly, by cross fecundation, some mules might be produced, between the species mentioned in the preceding paragraph and the hardy species. If the refreshing fragrance of M. fuscàta could be thrown into the flowers of M. grandiflòra, or of any of the other species which continue flowering for a long time, the result would be a desirable acquisition. We recommend the subject to the attention of ingenious cultivators.

Genus II.

LIRIODE′NDRON *L.* The Tulip Tree.

Gen. Char. *Carpels* 1-2-seeded, disposed in spikes, indehiscent, deciduous, drawn out into a wing at the apex. *Calyx* of 3 deciduous sepals. *Corolla* of 6 petals, conniving into a bell-shaped flower. (*Don's Mill.*, i. p. 86.) — There is only one species; a deciduous tree of the first rank. North America. Flowers yellowish, variegated with green, red, and orange. June. 1688. Height, in England, 70 ft.

¥ 1. Liriode′ndron Tulipi′fera *L.* The Tulip-bearing Liriodendron, *or* Tulip Tree.

Identification. Lin. Sp., 755.; Hayne Dend., 115.; Dec. Prod., 1. p. 82..; Don's Mill., 1. p. 86.
Synonymes. The Poplar, White Wood, Canoe Wood, the Tulip Tree, *Amer.*; Virginian Poplar, Tulip-bearing Lily Tree, Saddle Tree, *Eng.*; Tulipier de Virginie, *Fr.*; Virginischer Tulipeerbaum, *Ger.*
Derivations. This tree is called Liriodéndron, from *leirion*, a lily, and *dendron*, a tree; from the flowers resembling those of a lily, though more correctly those of a tulip, as the specific name implies. It is called Poplar, from its general resemblance to trees of that genus; White Wood, from the colour of its timber; Canoe Wood, from the use to which it is applied by the native Indians; Tulip Tree, from its tulip-like flowers; and Saddle Tree, from the form of its leaves. The French and German names are literal translations of the words Virginian tulip tree.
Engravings Bot. Mag., 275.; Duh., tom. 3. t. 18.; Willd. Ab., t. 29.; Krause, t. 34.; E. of Pl., 7903.; and our plate in Vol. II.

Spec. Char. Leaves smooth, truncate at the top; 4-lobed, resembling a saddle in shape. Flowers large, solitary, terminal, variegated with green, yellow, and orange colour; furnished with two deciduous bracteas under flowers. (*Don's Mill.*, i. p. 86.)

Varieties.

‡ *L. T.* 2 *obtusíloba* Michx., *integrifòlia* Hort., *the obtuse-lobed*, or *entire-leaved, Tulip Tree*, Yellow Wood, or Yellow Poplar, has the leaves with blunter lobes than the original species, but is in no other respect different from it. See the plate of this tree in our Second Volume.

‡ *L. T.* 3 *acutifòlia* Michx. has the leaves smaller and more acutely cut than either the preceding variety or the species. We are not aware of any plants of it existing in British gardens.

‡ *L. T.* 4 *flàva* Hort. has yellow flowers. As most of the tulip trees in Europe have been raised from seeds, it is probable that their flowers vary in degrees of yellowness; but we are not aware that any variety, with the flowers entirely yellow, is propagated in British nurseries. It is, however, in the catalogue of the garden at Courset, and in some of the Paris catalogues.

Description. This tree, in the Atlantic states of North America, according to Michaux, especially at a considerable distance from the sea, is often seen from 70 ft. to 100 ft. in height, with a trunk the diameter of which varies from 18 in. to 3 ft. The elder Michaux found in Kentucky, on the road from Beardstone to Louisville, tulip trees which appeared to be 15 ft. or 16 ft. in circumference; and, three miles and a half from Louisville, he measured one which, at 5 ft. from the ground, was 22 ft. 6 in. in circumference, the height of which he found to be from 120 ft. to 140 ft. Of all the deciduous trees of North America, the tulip tree, next to the button-wood (*P*látanus occidentàlis), attains the amplest dimensions; while the perfect straightness and uniform diameter of its trunk for upwards of 40 ft., the regular distribution of its branches, and the richness of its foliage, give it a decided superiority to that tree, and entitle it to be considered one of the most magnificent trees of the temperate zones. In the developement of its leaves the tulip tree differs from most other trees. The leaf-buds, in general, are composed of scales closely imbricated, which, in the spring, are distended by the growth of the minute bundle of leaves that they enclose, till they finally fall off. The terminal bud of each shoot swells considerably before it gives birth to the leaf: it forms an oval envelope, which contains the young leaf, and which produces it to the light only when it appears to have acquired sufficient force to endure the influences of the atmosphere. Within this envelope is found another, which, after the first leaf is put forth, swells, bursts, and gives birth to a second. On young and vigorous trees five or six leaves issue, successively, in this manner, from one bud. Till the leaf has acquired its growth, it retains the two scales which composed its envelope, and which are now called stipules. In the spring, when the weather is warm and humid, the growth of the leaves is very rapid: they are 6 in. or 8 in. broad, borne on long petioles, alternate, somewhat fleshy, smooth, and of a pleasing green colour. They are divided into three lobes; of which the middle one is horizontally notched at its summit, and the two lower ones are rounded at the base. This conformation is peculiar to the tulip tree, and renders it easily distinguishable in the summer. The flowers, which are large, brilliant, and, on detached trees, very numerous, are variegated with different colours, among which yellow predominates; they have an agreeable odour, and, surrounded by the luxuriant foliage, they produce a fine effect. In the spring they are gathered by women and children in the neighbourhood of New York, and sold in the market of that city. The fruit is composed of a great number of thin narrow scales, attached to a common axis, and forming a conical spike 2 in. or 3 in. in length. Each fruit contains 60 or 70 carpels; of which never more than a third, and in some seasons not more than seven or eight in the whole number, are productive. It is also observed, that, during ten years after it begins to yield fruit, almost all the seeds are unproductive; and that, on large trees, the seeds from the highest branches are the best. The bark, till the trunk exceeds 7 in. or 8 in. in diameter, is smooth and even: it afterwards begins to crack, and the depth of the furrow, and the thickness of the bark, are proportioned to the size, and to the age of the tree. The heart, or perfect wood, of the tulip tree is yellow, approaching to a lemon colour; and its sap, or alburnum, is white. (*Michaux.*) In Europe, though the tulip tree does not attain the same magnitude that it does in situations favourable to it, in its native country, it still forms a magnificent tree; in some cases, both in Britain and in the middle of the European continent, reaching the height of 90 ft. or 100 ft., flowering freely, and sometimes ripening seed. The annual shoots of young plants, in the neighbourhood of London, are from 18 in. to 2 ft. in length; and the tree will, in favourable circumstances, attain the height of from 15 ft. to 20 ft. in ten years; seldom, however, flowering till it is upwards of twenty years old. The height, in England, frequently exceeds 70 ft.; and it has ripened seeds here, occasionally, from which young plants have been raised. It ripens its fruit very generally in France; though it is observed, in the *Nouveau Du Hamel*, that these seeds do not vegetate so freely as those which are imported from America.

Geography. The southern extremity of Lake Champlain, in latitude 45°, according to Michaux, may be considered as the northern, and the Connecticut river, in the longitude of 72°, as the eastern, limit of the tulip tree. It is found beyond the Hudson, which flows two degrees farther west; and below 43° of latitude it is frequently met with, and fully developed. Its expansion is not here repressed, as in Vermont, and in the upper part of the Continent, by the excessive cold, and by a mountainous surface unfavourable to its growth. It abounds in the middle states, in the upper parts of the Carolinas and of Georgia; and is found still more abundantly in the western country, particularly in Kentucky. Its comparative rareness in the maritime parts of the Carolinas and of Georgia, in the Floridas, and in Lower Louisiana, is owing less to the heat of the summer than to the nature of the soil; which, in some parts, is too dry, as in the pine barrens, and in others too wet, as in the swamps which border the rivers. Even in the middle and western states, the tulip tree is less abundant than the oaks, the walnuts, the ashes, and the beeches, because it delights only in deep, loamy, and extremely fertile soils, such as are found in the rich bottoms that lie along the rivers, and on the borders of the great swamps that are enclosed in the forests. In the Atlantic states, especially at a considerable distance from the sea, tulip trees are often seen 70 ft., 80 ft., and 100 ft. in height, with trunks from 18 in. to 3 ft. in diameter: but the western states seem to be the natural soil of this magnificent tree, and there it displays its most powerful vegetation. It is commonly found mingled with other trees, such as the hickories, the black walnut and butter nut, the Kentucky coffee tree (Gymnócladus), and the wild cherry tree: but it sometimes constitutes, alone, pretty large tracts of the forest; as was observed by the elder Michaux on the road from Beardstone to Louisville. In no other part of the United States did he find tulip trees so lofty, and of so great a diameter. (*Michaux.*) The artificial geography of this tree may be said to embrace the middle region of Europe, from Berlin and Warsaw, on the north, to the shores of the Mediterranean and Naples, on the south; Ireland, on the west; and the Crimea, on the east.

History. When the tulip tree was first introduced into England is uncertain; but it was cultivated by Compton, at Fulham, in 1688. It was, however, at that time, wholly unknown as a timber tree. Evelyn, speaking of it, says, " They have a poplar in Virginia of a very peculiar-shaped leaf, which grows well with the curious amongst us to a considerable stature. I conceive it was first brought over by John Tradescant, under the name of the tulip tree, from the likeness of its flower; but it is not, that I find, taken much notice of in any of our herbals. I wish we had more of them; but they are difficult to elevate at first." (*Hunter's Evelyn*, i. p. 207.) According to Miller, Mr. Darley, at Hoxton, and Mr. Fairchild, were the first who raised this tree in any quantity from seeds; and from their nurseries it is probable that the numerous old trees which are spread all over the country were procured. The first notice which we have of the tulip tree on the Continent is in the *Catalogue of the Leyden Garden*, published in 1731. From the number of tulip trees existing in France, the south of Germany, and Italy, there can be little doubt that it spread as rapidly in those countries as it did in Britain. Public avenues are planted of it in Italy, and as far north as Strasburg and Metz. It stands the open air at Vienna, and attains a large size there; but it will not endure the open air north of Warsaw, or at Moscow, without protection. The first tulip tree which flowered in England was one in the gardens of the Earl of Peterborough, at Parson's Green, near Fulham. This is understood to have been the first tree which was planted in the open ground: previously, they had, like most other American trees in those times, been grown in pots, and housed every winter. This tree at Parson's Green, Miller says, convinced gardeners of their mistake, by the great progress which it made; so that afterwards there were a great many planted in open ground, which, more especially those on a moist soil, speedily attained a large size. Some at Waltham Abbey, and at Wilton, are referred to by him as among the oldest and largest.

Properties and Uses. The timber of the tulip tree, though classed among light woods, is yet, Michaux observes, much heavier than that of the common poplar; its grain is equally fine, but more compact; and the wood is easily wrought, and polishes well. It is found strong and stiff enough for uses that require great solidity. The heart-wood, when separated from the sap, and perfectly seasoned, long resists the influence of the air, and is said to be rarely attacked by insects. Its greatest defect, when employed in wide boards, and exposed to the weather, is, that it is liable to shrink and warp, by the alternations of dryness and moisture: but this defect is, in a great measure, compensated for by its other properties, and may be, in part, owing to its not being allowed sufficient time to be properly seasoned. The nature of the soil has so striking an influence upon the colour, and upon the quality of the tulip wood, that the mechanics who employ it have made the remark; and have distinguished it by the names of the white poplar, and the yellow poplar. The external appearances which mark these varieties are so equivocal, that they can only ascertain to which of them a tree belongs by cutting it. It is known, in general, that the white poplar grows in dry, gravelly, and elevated places; it is recognised, too, by its branchy summit, and by the small proportion which the light yellow heart-wood bears to the sap-wood. The grain, also, is coarser and harder, and the wood decays more speedily; hence it is always neglected, when the other variety can be obtained. The yellow poplar possesses every quality requisite to fit it for a great variety of uses. At New York and Philadelphia, and in the adjacent country, it is often employed in the construction of houses, for rafters and for the joists of the upper stories, for which purposes it is esteemed on account of its lightness and strength. In the other middle states, in the upper parts of the Carolinas, and, above all, in the western states, it is more generally used in building, and is considered as the best substitute for the pine, the red cedar, and the cypress. Wherever it abounds, it serves for the interior work of houses, and sometimes for the exterior covering. The panels of doors and of wainscots, and the mouldings of chimneypieces, are made of this wood. In the states of Ohio and Kentucky, on the banks of the Miami river, and in the upper part of North Carolina, shingles of it, about 15 in. long, are preferred for covering roofs; because they are the most durable, and because they are not liable to split from the effect either of intense frost, or of ardent sunshine. In all the large towns of the United States, tulip tree, or, as they are there called, poplar, boards, which are often 2 ft. or 3 ft. wide, are exclusively used for the panels of carriages. When perfectly dry, they take the paint well, and admit of a brilliant polish. The vicinity of Boston does not produce this tree, and the coachmakers there procure it from New York and Philadelphia: it is also sent for the same use to Charleston, S. C., where the tulip trees are few in number, and inferior in size. The seats of the Windsor chairs which are fabricated at New York, Philadelphia, and Baltimore, and in many other towns, are always of this wood: a large quantity of it is consumed in this way, and also in the manufacture of trunks which are covered with skins, and of bedsteads which are stained in imitation of mahogany. The circular board and wings of winnowing-machines are made of this wood, as it is easily wrought in the lathe, and is very light; it is also much used for wooden bowls, and for the heads of hair brooms, or sweeping-brushes. The farmers use it for the eating and drinking troughs of cattle: these troughs are formed of a single piece; and, exposed to the weather, they last as long as those made of chestnut and butternut (*Càrya*). In Kentucky, the wood of the tulip tree is sometimes employed for the rails of rural fences. It is found useful, also, in the construction of wooden bridges, as it unites lightness with strength and durability. The Indians who inhabited the middle states, and those who still remain in the western country, prefer this tree for their canoes; which, consisting of a single trunk, are very light and strong, and sometimes carry twenty persons. The wood of the tulip tree affords excellent charcoal, which, in America, is employed by the smiths in the districts that furnish no fossil coal. In the lumber yards of New York, Philadelphia, and Baltimore, a great quantity of this wood is found, in forms convenient for the uses above enumerated. In America it is very cheap; being sold at half the price of black walnut, wild cherry, and curled maple. In all the country watered by the river Monongahela, between 39° and 40° of latitude, the tulip tree is so abundant, that large rafts, composed wholly of its logs, are made to float down the stream. Michaux remarks that, when a poplar is felled, the chips of the heart-wood that are left upon the ground, particularly those which are half buried in the leaves, suffer, at the end of three or four weeks, a remarkable change; the lower part becomes of a dark blue, and they exhale a fetid ammoniacal odour; though the live part of the bark of the trunk, the branches, and still more of the roots, has an agreeable smell, and a very bitter taste; and, even under the same circumstances as the heart wood, it neither acquires the blue colour, nor the disagreeable smell.

Medical Properties. In Virginia, some of the inhabitants of the country steep the bark of the roots of this tree, with an equal portion of dogwood bark, in brandy, during eight days; and this tincture is considered a cure for intermittent fevers. Poplar bark, reduced to powder, and given in substance to horses, appears to be a pretty certain remedy for worms. The *American Museum* for December, 1792, contains details of the valuable properties ascribed to this bark, by Dr. Young of Philadelphia; from which it appears that it is nearly equal to quinquina, being a powerful tonic and antiseptic: the aromatic principle appears to reside in a resinous part of its substance, which stimulates the intestinal canal, and which operates as a gentle cathartic. In many instances, the stomach cannot support it, unless each dose is accompanied by a few drops of laudanum. In Paris, a spirituous liquor is made from the fresh bark of poplar roots, with the addition of a sufficient quantity of sugar to render it agreeable to the taste. (*Michaux.*)

The Uses of the Tulip Tree in Europe are limited almost entirely to those of ornament; for, though there are numerous trees which would produce excellent timber if cut down, we have never heard of any having been felled for this purpose, or, indeed, for any other. Every possessor of a tulip tree, in Europe, values it far higher for its beauty in a living state, than for its products, or the artificial applications of them. On the Continent, where trees ripen seeds, they may be considered as affording some profit from that source.

Soil and Situation. In its native country, according to Michaux, the tulip tree delights only in deep, loamy, and extremely fertile soils, such as are found in the alluvial plains on the margins of rivers, and on the borders of swamps. Like almost all other trees, however, it will grow on soils of different descriptions, and have its timber and other properties more or less affected by the circumstances in which it is placed. In deep rich soil, the wood is yellow and heavy; in dry gravelly soil, on an elevated situation, it is white, light, coarse, hard, and decays more readily than the wood which has grown on rich soil. According to Du Hamel, it neither thrives in France on a dry and gravelly soil, nor on one with the subsoil of clay or marl. The most rapid-growing young tulip trees which we have heard of in England were planted in a deep sandy loam, in a rather moist climate, in the West Riding of Yorkshire; and the progress of these has been at the rate of 16 ft. in 10 years, from the seed. (See *Gard. Mag.*, vol. xi. p. 250.) The situation most favourable for the tulip tree is one which, while it is sheltered from high winds, is, at the same time, sufficiently exposed to the light and air to admit of the maturation of its leaves on every side, and the perfect ripening of its wood, without which it can neither resist the severe frosts of winter, nor form blossom-buds. If it were desired to grow the tree for the purpose of forming straight clean timber, it ought to be placed in a close plantation, where one plant would draw up another.

Propagation and Culture. The species is seldom, if ever, propagated otherwise than by seeds, which come up best in heath soil, very fine mould, or sandy loam, in a shady situation, kept rather moist; but the varieties are, of course, multiplied by layers, budding, grafting, or inarching. When the seeds are sown in autumn, they generally come up the following spring; but, sown in spring or the beginning of summer, they generally remain a year in the ground. Formerly, nurserymen used to raise them on heat; by which means spring-sown seeds came up the succeeding summer. In France, and, occasionally, in England, the obtuse-lobed variety is raised by layers or inarching; but, in either case, it requires two or three years before the plants can be separated from the parent stock. The tulip tree, like the magnolias, having roots furnished with but few fibres, does not transplant readily; and, therefore, the plants ought either to be kept in pots, or, if in the free ground, transplanted in the nursery every year; or, if neither of these modes be practicable, removed to their final situation, when not more than two, or at most three, years old. The tree is, like the magnolias, not very patient of the knife, either in a young or in an old state; and, from the bitter qualities of the leaves, it does not seem to be much attacked by insects.

Geographical Statistics. Liriodéndron Tulipífera in the Environs of London. The largest tulip tree that we have seen in the neighbourhood of London is at Syon, where, in about 70 years, it has attained the height of 76 ft. The trunk, at 1 ft. from the ground, measures 2 ft. 6 in. in diameter; and the diameter of the space covered by the branches is 46 ft. (See the plate of this tree in our Vol. II.) The next largest tree is at Mount Grove, Hampstead, the residence of T. N. Longman, Esq., 80 years planted, 70 ft. high, the diameter of the trunk is 3 ft. 10 in., and that of the head 49 ft. The oldest tree, estimated at 150 years, is at Fulham Palace: it is 55 ft. high; the trunk, at 1 ft. from the ground, is 3 ft. in diameter; and the head, which is in a decaying state, is 25 ft. in diameter. In the arboretum at Kew, there is a tree 60 years planted, which is 70 ft. high; the diameter of the trunk is 2 ft. 8 in.; and that of the space covered by the branches is 35 ft. All these trees flower freely every year, and, in fine seasons, ripen some seeds.

Liriodéndron Tulipífera South of London. The dimensions of a great number of specimens have been sent us, from which we select the following, partly to show the rate of growth, and partly to show the ultimate magnitude. In Berkshire, at High Clere, 14 years planted and 28 ft. high, in an exposed situation, 500 ft. above the level of the sea. In Cornwall, at Port Elliot, 80 years planted and 60 ft. high; and at Carclew, 40 years planted and 60 ft. high. In Devonshire, at Killerton, 70 years planted and 63 ft. high; and in the Killerton Nursery, 22 years planted and 37 ft. 6 in. high; at Luscombe, 21 years planted and 37 ft. high; at Endsleigh, 18 years planted and 35 ft. high. In Hampshire, at Farnham Castle, 55 years planted and 40 ft. high, on chalk. In the Isle of Jersey, in Saunders's Nursery, 10 years planted and 18 ft. high, on strong clay. In Somersetshire, at Hestercombe, 96 ft. high; with a trunk nearly 3 ft. in diameter: a magnificent tree, which ripens seeds every year. In Sussex, at Cowdray, 40 ft. high. In Surrey, at Claremont, 70 ft. high, in sandy loam on clay; at Oakham Park, 28 years planted and 32 ft. high; at Melbourne, 70 ft. high. In Wiltshire, at Longleat, 70 ft. high; at Corsham, 66 ft. high; and at Wardour Castle, 50 years planted and 60 ft. high.

Liriodéndron Tulipífera North of London. In Bedfordshire, at Southill, 22 years planted and 38 ft. high. In Herefordshire, at Stoke Edith, 20 years planted and 36 ft. high. In Lancashire, at Latham House, 60 years planted and 43 ft. high. In Leicestershire, at Elvaston Castle, 34 years planted and 45 ft. high. In Northamptonshire, at Wakefield Lodge, 9 years planted and 15 ft. high. In Pembrokeshire, at Golden Grove, 70 years planted and 60 ft. high. In Radnorshire, at Maeslough Castle, 50 years planted and 73 ft. high; the trunk 2 ft. in diameter, and the diameter of the tree 36 ft.; the soil a deep yellow loam. In Staffordshire, at Trentham Hall, 50 ft. high, with the trunk 2 ft. in diameter. In Suffolk, at Culford, 8 years planted and 14 ft. high; at Livermere, 30 years planted and 26 ft. high, on strong clay in a northern exposure; at Wolverton Hall, 60 ft. high, and the trunk 2 ft. 8 in. in diameter. In Warwickshire, at Combe Abbey, 50 years planted and 40 ft. high. In Worcestershire, at Kinlet, 50 years planted and 60 ft. high; the diameter of the trunk 2 ft. 7 in., and of the head 60 ft., containing 35 cubic feet of timber; the soil a sandy loam, and the situation sheltered. The lower part of this tree always comes into leaf before the upper part has the least appearance of doing so; the cause of which is, that the lower part is sheltered by high ground, while the upper part is exposed to a strong west wind: it flowers freely, and has a splendid appearance at that season, and also in autumn, before it sheds its yellow leaves. In the same county, at Croome, 70 years planted, 75 ft. high; the trunk 2 ft. 6 in. in diameter, and the diameter of the head 35 ft. on strong loam; at Hagley, 12 years planted and 15 ft. high, on a sandy loam. In Yorkshire, in the Hull Botanic Garden, 20 years planted and 30 ft. high, in strong loam on clay; at Ripley Castle, 10 years planted and 16 ft. high; at Knedlington, 10 years from the seed, sown on the spot, 14 ft. to 16½ ft. high; the trunk from 2½ in. to 4 in. in diameter, and the diameter of the head 5 ft. or 6 ft.; at Grimstone, 12 years planted and 35 ft. high; the diameter of the stem 7½ in., and of the head 15 ft.; the soil a deep free loam, and the situation sheltered.

Liriodéndron Tulipífera in Scotland. Near Edinburgh, at Gosford House, 20 years planted and 20 ft. high; and at Hopeton House, two trees, 86 years planted and 60 ft. high, with trunks 2 ft. 4 in. in diameter, and heads 30 ft. in diameter. There is a tree at Tyningham, 72 years planted, 34 ft. high, and the diameter of the trunk 2 ft. 3 in.; at the Hirsel, a low tree, 100 years planted, 13 ft., the trunk 4 ft., and the branches 33 ft., in diameter; at St. Mary's Isle, 60 years planted and 50 ft. high; at Cassincarie, 55 ft. high; in the Glasgow Botanic Garden, 14 years planted and 13 ft. high, the young shoots occasionally cut down in winter, especially if the preceding summer has been such as not to ripen them fully; at Roseneath Castle, 55 ft. high. In Fifeshire, at Dinibristle Park, 40 ft. high. In Perthshire, at Annat Gardens, 27 years planted and 20 ft. high; at Gerthy, 2 trees, 40 ft. high, which flower occasionally. In Ross and Cromarty, at Coul, 10 years planted and 10 ft. high, and the diameter of the trunk 2 in.; the situation 160 ft. above the level of the sea, and in north latitude 55° 35′. In Sutherlandshire, at Dunrobin Castle, 20 years planted and 10½ ft. high; the diameter of the trunk 2¾ in., and of the head 11 ft.

Liriodéndron Tulipífera in Ireland. Near Dublin, in the Glasnevin Garden, 30 years planted and 20 ft. high; at Cypress Grove, 35 ft. high, flowering freely every year in strong loam or clay; at Howth Castle, 36 ft. high; at Terenure, 9 years planted and 11 ft. high; in Cullingswood Nursery, 24 years planted and 26 ft. high. In Munster, at Castle Freke, 35 ft. high. In Leinster, at Oriel Temple, 40 years planted and 43 ft. high; at Charleville Forest, 45 years planted and 54 ft. high; at Shelton Abbey, 50 years planted and 60 ft. high. In Ulster, at Florence Court, 38 years planted and 45 ft. high; the diameter of the trunk 2½ ft., and of the head 30 ft. In Connaught, at Mackree Castle, 37 ft. high.

Liriodéndron Tulipífera in Foreign Countries. In France, in the Toulon Botanic Garden, 48 years planted and 40 ft. high, the trunk 3 ft. in diameter, in calcareous soil; at Mereville, 30 years planted and 60 ft. high, in a free moist soil; near Nantes, 40 years planted and 50 ft. high. In Holland and the Netherlands, in the Ghent Botanic Garden, 70 ft. high; in the grounds of the palace of Läcken, near Brussels, there is a tree which ripens seeds every year, noticed in p. 145. In Prussia, at Harbeke, 10 years planted and 14 ft. high; at Sans Souci, Potsdam, 42 years planted 50 ft. high; in the Berlin Botanic Garden, 18 years planted and 40 ft. high; the shoots sometimes injured by the frost. At Schwöbber, near Hanover, 120 years planted, 80 ft. high; the diameter of the trunk 2 ft., and of the head 30 ft.; in alluvial soil near water. In Saxony, at Wörlitz, 60 years planted and 30 ft. high. At Munich, in the public garden, 20 years planted and 20 ft. high; in a private garden near the city, 36 years planted and 50 ft. high, flowering freely every year. In Cassel, at Wilhelmshöhe, 60 years planted and 20 ft. high. In Austria, in the University Botanic Garden, 20 years planted and 24 ft. high; at Laxenburg, 40 years planted and 30 ft. high; at Kopenzel, near Vienna, 60 years planted and 45 ft. high; at Brück on the Leytha, 40 years planted and 51 ft. high. In Italy the tree abounds, and attains the height of 70 ft. or 80 ft., flowers freely, and ripens seeds, as may be seen by referring to p. 169.

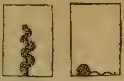
Commercial Statistics. Plants are abundant in all the European and American nurseries. In London, seedlings are 12*s.* a hundred; transplanted plants, 2 ft. high, 50*s.*; and those from 3 ft. to 4 ft. high, 75*s.*; and seeds are 1*s.* 6*d.* a quart. At Bollwyller, one year's seedlings are 20 francs a hundred; two years' seedlings, 35 francs; plants in pots, 1 franc 5 cents each; and plants from 6 ft. to 9 ft. high, from 2 francs to 3 francs 50 cents; and the entire-leaved variety is charged 4 francs. In New York, plants are 20 cents each, and seeds 4 dollars and 50 cents a bushel.

App. i. *Expected Additions to the Order Magnol*iàceæ.

In our list (p. 173.) of the Magnol*iàceæ* of the Himalaya, which might probably endure the open air in England, are included *Manglìetia insígnis*, the Magnòl*ia* insígnis of Dr. Wallich, which grows on the mountains of Nepal; *Michèl*ia *lanuginòsa*, *excélsa*, Kisòpa, and Doltsòpa; all of which, being found in elevated regions in the Himalaya, Mr. Royle conjectures would stand the open air in Devonshire, and, with a little protection, in the climate of London. Michèl*ia Doltsòpa* is one of the finest trees in Nepal, yielding a fragrant wood much used there for house-building. (*Don's Prod.*, 226.) Michèl*ia* excélsa, according to Dr. Wallich, produces a valuable timber of a fine texture, at first greenish, but soon changing into a fine yellow. We have already observed p. 173.) that there are probably various species of Magnol*iàceæ* in China and Japan, not yet introduced, which would prove hardy, and the introduction of which would amply repay patriotic travellers and European residents in those countries.

As many of the species of Magnòl*ia* seem to admit of cross-fecundation, it is possible that the same thing may be practicable, to a greater or less extent, between the genera composing the order. The tulip tree, rendered subevergreen, would be an interesting object; as would a variety of it with fastigiate branches, like the Lombardy poplar; or one as truly pendulous as the weeping ash; or one with dark leaves, like those of the purple beech. No doubt, a variegation might be produced in the leaves both of the tulip tree and of the magnolia.

CHAP. IV.



OF THE HALF-HARDY LIGNEOUS PLANTS OF THE ORDER DILLENI*A'CEÆ.*

We introduce this order chiefly for the sake of recommending some species of Hibbért*ia* as half-hardy climbers. All the hibbertias are either natives of the Cape of Good Hope, or of Australia; and, probably, the whole of them might live against a wall with protection. They grow freely either in sandy loam mixed with leaf mould, or in sand and peat; and they are readily increased by cuttings, either of the young or of the ripened wood.

1. *Hibbért*ia *volùbilis* Bot. Rep., t. 126., *and our* fig. 38., *the twining Hibbertia*, was introduced from the Cape of Good Hope in 1790, and has been long known, in green-houses and conservatories, as Dillèni*a* volùbilis, or Dillèni*a* scándens. The flowers are about the size of those of *H*ypéricum calycìnum: they are of a bright yellow, and are produced all the season, from the beginning of May to the end of October. The plant is a vigorous grower; and, in conservatories, will extend to the height of 8 ft. or 10 ft. in about as many years.

2. *Hibbért*ia *dentàta* R. Br., *Bot. Reg.*, t. 282., *and our* fig. 37., *the toothed-leaved Hibbertia*, was introduced from New Holland, where it grows on the Blue Mountains, in 1814. It is a vigorous-growing twiner, like the preceding species, with narrower leaves and rather smaller bright yellow flowers, which are produced from February or March till August. It has been tried in the open air in several places, and found to stand the winters of London with very little protection; sometimes, when neglected, being killed down to the ground, but shooting up again the following spring. One in our garden at Bayswater has stood since 1831; and one in the garden at Bicton, near Exeter, since 1833.

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3. *Hibbért*ia *grossulariæfòlia* Sal., *Bot. Mag.*, t. 1218. *The Gooseberry-leaved Hibbertia.*—This is an elegant trailer, from New Holland, which has been in cultivation since 1816. The leaves are nearly round, beautifully notched; and the flowers are on peduncles opposite the leaves, and of a bright yellow. It is rather a procumbent than a climbing plant; but thrives well against a wall, or on rockwork, during the summer months.

*Other Species of Hibbért*ia, from New Holland, are in cultivation in Britain; and upwards of a dozen, which have been described, remain to be introduced; all of which, there can be no doubt, will stand our British winters with little protection, and produce a fine show of their brilliant yellow flowers during the summer months.

CHAP. V.

OF THE HARDY LIGNEOUS PLANTS OF THE ORDER *ANONA'CEÆ.*

The characteristics of this order assimilate most to those of Magnol*iàceæ*, and those distinctive of it from that order are: anthers with an enlarged four-cornered connectivum, which is sometimes nectariferous; albumen pierced by the substance of the seed-coat; leaves without stipules, conduplicate in the bud; properties aromatic. (*Lindl. Introd. to N. S.*, and *Don's Mill.*) The leaves of Magnol*iàceæ* are involute in the bud; and, perhaps, they are generally less obviously feather-nerved than those of *Anonàceæ*. The hardy species of this order are included in the genus *Asímina* Adans., formerly *Anòna* L., and are natives of North America.

Genus I.

ASI'MINA Adans. The Asimina. *Lin. Syst.* Polyándria Polygýnia.

Identification. Adans. Fam., 2. p. 365.; Dec. Prod., 1. p. 87.; Don's Mill., 1. p. 91.
Synonymes. *Annòna* L.; Orchidocárpum *Mx.*; Porcèl*iæ* sp. *Pers.*; Custard Apple; Asiminier, and Anone, *Fr.*; Flaschenbaum, *Ger.*

Derivations. *Asímina* is Latinised from a word of Canadian origin, the meaning of which is not known. Orchidocárpum was, it is probable, intended to express a likeness between the figure of the fruit, and that of some species of *O'rchis.* Porcè*lia* is a name given by Ruiz, in honour of Antonio Porcel, a Spanish promoter of botany. *Anòna* is a South American word, that signifies a mess, or dish of food, to be eaten with a spoon. Linnæus, in applying this word, says, "annona [spelling it with two ns] and guanabanus are barbarous words; that the sound, however, may be kept, I name it Annona, on account of the fruit which is so grateful to the natives." (*Hort. Cliff.*) This word, guanabanus, is a synonyme to *Anòna* muricàta, a stove plant. The German name, Flaschenbaum, flask tree, is given from the shape of the fruit.

Gen. Char. *Calyx* 3-parted. *Petals* 6, spreading, ovate-oblong, inner ones smallest. *Anthers* numerous, nearly sessile. *Ovaries* many, but for the most part only 3, ovate or oblong. *Carpels* the same number as the ovaries, baccate, sessile. *Seeds* many, disposed in a single or double row. (*Don's Mill.*, i. p. 91.) — Low trees or shrubs, deciduous, with white or purplish flowers, and fruit about the size of small plums. Rather tender, and difficult of culture.

Description. The plants, in their native countries, are shrubs or low trees, varying from 2 ft. to 30 ft. in height. In this country they are, for the most part, shrubs; though there are specimens of *A.* tríloba, near London, in the Hammersmith Nursery, and at Purser's Cross, 10 ft. high. All the species require peat soil, and they are only propagated from imported seeds.

Geography, History, &c. The species are found in Virginia, Georgia, Carolina, and Florida; generally in shady places on the margins of woods, and almost always in sandy soil. They have been introduced at different periods, from 1736 to 1820.

1. *A.* PARVIFLOˋRA *Dun.* The small-flowered Asimina.

Identification. Dun. Mon. Anon.; Dec. Prod., 1. p. 87.; Don's Mill., 1. p. 91.
Synonymes. Porcè*lia* parviflòra *Pers.*; Orchidocárpum parviflòrum *Mx.*
Engravings. Dunal Monog., p. 82. t. 9.

Spec. Char. Leaves cuneate-obovate, mucronate; under surface, as well as branches, covered with brown pubescence. Flowers sessile; outer petals scarcely twice as long as the calyx. (*Don's Mill.*, i. p. 91.) This is a deciduous shrub, from 2 ft. to 4 ft. in height. The flowers have the outside of the calyx and corolla clothed with brownish tomentum; and the inside of the petals is of a dark purple colour. The berries are aggregate, sessile, fleshy, of the size of a small plum.

Geography, History, &c. Found in Virginia, Georgia, and Carolina, in shady woods near rivers and lakes; flowering in April and May. It was introduced into England in 1806, but is little known either in botanic gardens or nurseries. In New York plants are 1 dollar each.

2. *A.* TRIˊLOBA *Dun.* The three-lobed-*calyxed* Asimina.

Identification. Dun. Monog.; Dec. Prod., 1. 87.; Don's Mill., 1. 91.
Synonymes. *Annòna* tríloba *L.*, and *Mx. in Arb.*; Porcè*lia* tríloba, *Pers.*; Orchidocárpum arietìnum *Mx. Bor. Am.*; the Papaw, *Amer.*; Asiminier de Virginie, and Annone à trois Lobes, *Fr.*; dreylappiger (three-lobed) Flaschenbaum, *Ger.*
Engravings. Mill. Icon., 1. t. 35.; Du Ham., 2. t. 25.; Mx. Arb., 3. t. 9.; E. of Pl., 7927.; and our *fig.* 39.

Spec. Char., &c. Leaves oblong-cuneated, acuminated, and as well as the branches, smoothish. Flowers on short peduncles; outer petals roundish-ovate, four times longer than the calyx. (*Don's Mill.*, i. p. 91.) A small tree, densely clothed with long leaves, lying over one another in such a manner as to give a peculiarly imbricated appearance to the entire plant. The flowers are campanulate and drooping, and appear before the leaves; the outer petals are purple, and vary in colour in different plants; in some being very dark, and in others light, inclining to yellow. The berries are large, yellow, ovate, oblong, and eatable. They contain a yellow pulp, of a sweet luscious taste, in the middle of which lie, in two rows, 12 seeds, divided by as many thin membranes. All parts of the tree have a rank, if not a fetid, smell; and the fruit is relished by few persons except negroes. The fruit ripens in America in the beginning of August, and is about 3 in. long and 1½ in. thick, oval, irregular, and swelling into inequalities.

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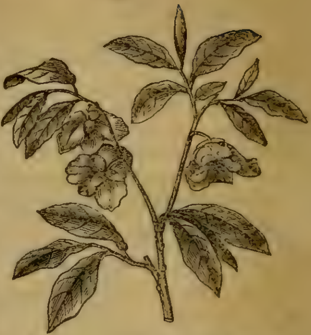

Geography, History, &c. Michaux did not observe this tree north of the Schuylkill river; and it appears to be unknown, or extremely rare, in the low and maritime part of the southern states. It is not uncommon in the bottoms of the rivers which stretch along the middle states; but it is most abundant in the rich valleys intersected by the western waters; where, at intervals, it forms thickets exclusively occupying several acres. In Kentucky and the western part of Tennessee, it is sometimes seen, also, in forests where the soil is luxuriantly fertile; of which its presence is an infallible proof. In these forests it attains the height of 30 ft., with a trunk 6 in. or 8 in. in diameter, though it generally stops short of half this height. (*Michaux.*) This species was imported to England, under the name of *Anòna* tríloba, by Peter Collinson, in 1736; and it has since become known in the principal botanic gardens of Europe, and procurable in first-rate nurseries. Miller mentions that the largest plant he had seen was in the Duke of Argyll's garden at Whitton. (See p. 57.) The largest tree that we have heard of is that already mentioned, at Purser's Cross; where, some years ago, a tree of about the same size, since dead, ripened fruit. The plants are always raised from seeds; and they seldom produce shoots exceeding 5 in. or 6 in. in length: hence a plant, in ten years, does not reach above 3 ft. or 4 ft. in height; and will not flower till of 15 or 20 years' growth.

Properties, Uses, &c. The fruit in America is never brought into the markets, and is sought in the woods only by children. A spirituous liquor has been made from it, but it is of little worth. The wood is spongy, extremely soft, destitute of strength, and applicable to no use in the mechanical arts. In England, it may be considered as a curious, slow-growing, deciduous shrub, well deserving a place in gardens, but which ought always to be isolated, and at some distance from rapid-growing plants. Relatively to growth, it may be placed near Dírca palústris, some of the daphnes, or Illícium parviflòrum. Plants, in the London nurseries, are 2*s.* 6*d.* each, and seeds 1*s.* an ounce; at Bollwyller, 5 francs a plant; and in New York, 40 cents.

♣ 3. *A.* PYGMÆ`A *Dun.* The Pygmy Asimina.

Identification. Dun. Monog.; Dec. Prod., 1. 87.; Don's Mill., 1. 92.
Synonymes. *Annòna* pygmæ`a *Bartr.*; Orchidocárpum pygmæ`um *Mx. Fl. Bor. Amer.*; Porcèl*ia* pygmæ`a *Pers.*

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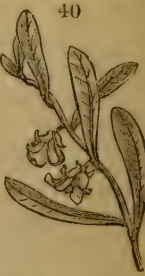

Engravings. Bartr. Trav., p. 21. t. 1.; E. of Pl., 7932.; and our *fig.* 40.

Spec. Char., &c. Stem suffruticose. Leaves oblong-linear, cuneate, blunt, and, as well as the branches, smooth. Flowers on short peduncles. Outer petals obovate-oblong, much larger than the calyx. (*Don's Mill.*, i. p. 92.) A little shrub, hardly 1 ft. high, with twiggy branches, and long, cuneated, narrow leaves. Outer petals much larger than the inner ones, and all white. Found in Georgia, Florida, and Carolina, in sandy fields. Flowers white. April and June.

Geography, History, &c. We have never seen this species, and know nothing more of its history than what is above stated. By the catalogues it appears to have been introduced into England in 1812, and, probably, is since lost. In New York, plants are 1 dollar 50 cents each.

♣ 4. *A.* GRANDIFLO`RA *Dun.* The large-flowered Asimina.

Identification. Dun. Mon.; Dec. Prod., 1. p. 87.; Don's Mill., 1. p. 92.
Synonymes. *Annòna* grandiflòra *Bartr.*; *A.* obovàta, *Willd.*; Orchidocárpum grandiflòrum *Mx. Fl. Bor. Amer.*; Porcèl*ia* grandiflòra *Pers.*; Asiminier à grandes Fleurs *Bon. Jard.*
Engravings. Dun. Mon., t. 11.; Bartr. Trav., t. 2.

Spec. Char. Leaves cuneate-obovate, obtuse; under surface, as well as the branches, clothed with brown pubescence. Flowers sessile; outer petals obovate, much larger than the calyx. (*Don's Mill.*, i. p. 92.) A small smooth-branched shrub, with white flowers, very large for the size of the plant; the outer petals are larger than the inner ones; the berries are smooth, and oblong-obovate. Height 2 ft.

Geography, History, &c. Native of Georgia and Florida, in sandy woods and shady places; and brought to England in 1820. It is still rare, or, rather, scarcely to be met with. It may ultimately turn out that these four alleged species are only varieties of one species, modified by local circumstances. At all events, one of them (*A.* tríloba) is quite sufficient in a general collection, to give a correct idea of the genus.

CHAP. VI.

OF THE HALF-HARDY LIGNEOUS PLANTS OF THE ORDER SCHIZANDRA`CEÆ.

Some of the genera of this order have been referred to Menispermàceæ, and some to *Anonàceæ*; we introduce it here, in order to notice a beautiful ligneous climber, Schizándra.

Identification. Don's Mill., 1. p. 101.; Blum. Bijdr. Fl. Ind. ex Schlecht. in Linnæa, i. p. 497. obs.
Synonymes. Part of Menispermàceæ and part of *Anonàceæ* with Dec.; *Anonàceæ* § Schizándreæ *Lindley's Key*, p. 46.

GENUS I.

SCHIZA'NDRA *Michx.* THE SCHIZANDRA. *Lin. Syst.* Monœ`cia Pentándria.

Identification. Michx. Fl. Bor. Amer., 2. p. 18.; Dec. Syst., 1. p. 548.; Don's Mill., 1. p. 101.
Derivation. From *schizō*, to cut, and *anēr, andros*, a man; stamens cleft.
Gen. Char. *Flowers* monœcious. *Sepals* 9, in a ternary order. *Petals* none. *Male flowers* with 5 anthers, which are joined at the apex; *female* ones with an indefinite number of ovaries. *Berries* disposed in spikes along an elongated receptacle. (*Don's Mill.*, i. p. 101.)—A deciduous climber.

1. SCHIZA'NDRA COCCI'NEA *Michx.* The scarlet-*flowered* Schizandra.

Engravings. Michx. Flor. Bor. Amer., 2. t. 47.; Sims, Bot. Mag., 1. 1413.; Encyc. of Pl., 13259.; Don's Mill., f. 26.; and our *fig.* 41.

Spec. Char., Description, &c. Leaves alternate, oval-lanceolate, pointed at both ends, rarely toothed, of a beautiful green, smooth above and pale beneath, petiolated. Flowers scarlet, disposed in spikes in the axils of the leaves. A climbing, deciduous, half-hardy shrub, found in shady woods in Georgia and Florida, and also in Carolina. It flowers in June and July, and was introduced into England in 1806. It is generally treated as a green-house plant; but it stood out through the winters of 1832, 1833, 1834, and 1835, in the garden of the Horticultural Society, trained against a wall, and very slightly protected. It forms a most desirable ornament in the summer season, and should have a place against every conservative wall. It prefers a light sandy soil, and is easily propagated by ripened cuttings, in a pot of sand, placed under a hand-glass. Price, in London, 5*s.*; at Bollwyller, ?; and in New York, 75 cents.

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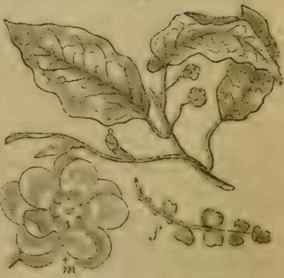


App. i. *Anticipated Additions to the Hardy Species of Schizandràceæ.*

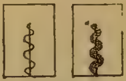
Sphærostèma grandiflòrum, and other species from Nepal, commonly included under Menispermàceæ (see p. 175.), but properly belonging to this order, may possibly be found half-hardy; as may Kadsùra *japónica*, which, as the name implies, is a native of Japan.

CHAP. VII.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER MENISPERMA`CEÆ.

DISTINCTIVE Characteristics. Thalamiflorous (*H. B.*). Sexes, in most, diœcious; in the rest, monœcious or polygamous. Sepals and petals similar; the latter not present in some. Stamens monadelphous, or rarely free; equal in number with the petals, and opposite to them, rarely double that number, or fewer. Ovaries, in some, numerous, each one-styled, all somewhat connected at the base; or, in others, only one, crowned with many styles, and many-celled, and, therefore, consisting of many carpels grown together, very rarely, one-celled, and this, most likely, by abortion. Fruit, in most, baccate or drupaceous, one-seeded or many-seeded, oblique or lunulate, compressed, with the seeds of the same form. Embryo curved or peripheric. Albumen none, or very sparing and fleshy. (*Don's Mill.*, i. p. 102., with adaptation.) — Climbing or twining shrubs, mostly natives within the tropics, with alternate, stalked, usually cordate or peltate, simple, rarely compound leaves, always with the middle nerve terminating in an awn or point; destitute of stipules. Flowers small; in most species, in axillary racemes. (*Don's Mill.*, i. p. 102.) The species in British gardens are included in the genera Menispérmum and Cócculus, and are natives of North America and Dahuria. They are all of the easiest culture, and are propagated by dividing the root, or by cuttings.

GENUS I.



MENISPE′RMUM *L.* THE MOONSEED. *Lin. Syst.* Diœ`cia Dodecándria.

Identification. Tourn.; Dec. Prod., 1. p. 102.; Don's Mill., 1. p. 112.
Synonymes. Ménisperme, *Fr.*; Mondsaame, *Ger.*
Derivation. From *mēne*, the moon, and *spērma*, a seed; from the seeds being crescent-shaped.

Gen. Char. *Sepals* and *petals* disposed in a quaternary order, in two or three series. *Male flowers* with 16 to 20 stamens; *female flowers* with 2 to 4 ovaries. *Drupe* baccate, roundish-kidney-shaped, 1-seeded.—Climbing shrubs, with alternate, peltate or cordate, smooth leaves. Peduncles axillary or supra-axillary. Male and female peduncles rather dissimilar. Flowers small, greenish-white. (*Don's Mill.*, i. p. 112.)

⫡ 1. M. CANADE′NSE. The Canadian Moonseed.

Identification. Lin. Sp.; Dec. Prod., 1. p. 102.; Don's Mill., 1. p. 112.
Synonymes. M. canadénse var. α *Lamarck*; M. angulàtum *Moench*; Ménisperme du Canada, *Bon. Jard.*; Canadischer Mondsaame, *Ger.*
Engravings. Schkuhr. H., 3. t. 337.; Lam. Dict., t. 824.; and our *fig.* 42.

Spec. Char. Leaves peltate, smoothish, somewhat cordate, roundish-angular; angles bluntish, terminal one abruptly awned, mucronate. Racemes solitary, compound. Petals 8. (*Don's Mill.*, i. p. 112.) A twining shrub, with thick woody roots, and numerous very slender shoots, which rise to the height of 12 ft. or 14 ft., but which, though ligneous, never attain any considerable diameter, and are not of many years' duration. The stem twines in a direction contrary to the sun's apparent motion, and is smooth and even, having more the appearance of a herbaceous plant, than of a shrub. The flowers are small, and the berries black.

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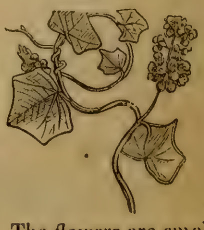

Variety.

M. c. 2 *lobàtum* Dec. *The lobed*-leaved *Canadian Moonseed.* M. virgínicum *L.* — This variety is distinguished by the angles of the leaves being acutish, and the flowers of a greenish white. Figured in *Dill. Elth.*, t. 178. fig. 219.

Geography, History, &c. Found in North America, among bushes, on the banks of rivers, and on fertile declivities, from Canada to Carolina; and also indigenous in Siberia. It was cultivated, in 1713, by Bishop Compton; and is not unfrequent in British botanic gardens, and in our principal nurseries. It will grow in any free, deep, and rather moist soil; and, as it sends up numerous shoots from its thick woody roots, it is easily propagated by dividing them, or by layers made in autumn, which will root in one year. Both the male and female plants are in Lee's Nursery; and the male of the variety M. c. lobàtum is in the garden of the London Horticultural Society. Price, of plants in the London nurseries, 1*s.* 6*d.* each; at Bollwyller, 90 cents; in New York, 25 cents.

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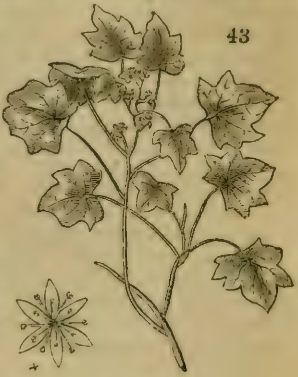

2. MENISPE′RMUM DAÜ`RICUM *Dec.*
The Daürian Moonseed.

Identification. Dec. Prod., 1. p. 102.; Don's Mill., 1. p. 112.
Synonyme. Trílophus Ampelisàgria *Fisch.*; M. canadénse var. β *Lam.*
Engravings. Delcss. Icon., 1. t. 100. and our *fig.* 43.

Spec. Char. Leaves peltate, smooth, cordate, angular; angles acute, terminal one acuminated hardly mucronate. Racemes in pairs, capitulate. (*Don's Mill.*, i. p. 112.) A twining shrub, resembling M. canadénse, but smaller in all its parts, and, probably, only a variety of that species. Flowers yellowish. June and July. 1818. Found in Daüria, on rocky hills near the river Chilca, and said to be introduced into England in 1818; but we have never seen it.

3. M. SMILA′CINUM *Dec.* The Smilax-like Moonseed.

Identification. Dec. Syst., 1. p. 541.; Don's Mill., 1. p. 112.
Synonyme. Cissámpelos smilácina *Lin.*
Engravings. Jacq. Icon., t. 629.; Catesb. Carol., 1. t. 51.; and our *fig.* 44.

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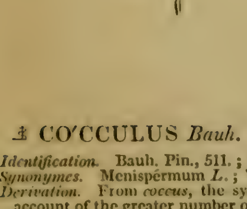


Spec. Char. Leaves peltate, smoothish, cordate-roundish, bluntly angular, under surface glaucous. Racemes simple. Petals 4. (*Don's Mill.*, i. p. 112.) A climbing shrub, with slender stalks, and leaves resembling those of the common ivy. The flowers, which appear in July and August, are white, and the berries are red, about the size of small peas, and grow in clusters. Found in Carolina by Catesby, and first described by him. It was introduced into Britain in 1776, by Dr. Hope, then professor of botany at Edinburgh. The plant is rather scarce in British gardens; and, when it is met with, it is generally in a greenhouse; though there can be little doubt of its being half-hardy.

GENUS II.

CO′CCULUS *Bauh.* THE COCCULUS. *Lin. Syst.* Diœ`cia Hexándria.

Identification. Bauh. Pin., 511.; Dec. Prod., 1. p. 96.; Don's Mill., 1. p. 104.
Synonymes. Menispérmum *L.*; Wendlándia Willd.; Andróphilax *Wendl.*
Derivation. From *coccus*, the systematic name of cochineal, which is applied to this genus on account of the greater number of the species bearing scarlet berries.

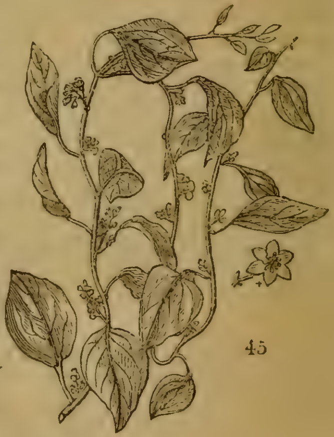
Gen. Char. Sepals and *petals* disposed in a ternary order, in 2, very rarely in 3 series. *Male flowers* with 6 free stamens opposite the petals; *female* ones with 3 or 6 carpels. *Drupes* baccate, 1 to 6, usually obliquely reniform, somewhat flattened, 1-seeded. *Cotyledons* distant. (*Don's Mill.*, i. p. 104.)

Description. This is a genus of climbing or twining shrubs, with peltate, cordate, ovate or oblong, entire, rarely lobed, leaves. Peduncles axillary, rarely lateral; those bearing male flowers are usually many-flowered; but those bearing female flowers are few-flowered, either free from bracteas, or furnished with very small ones. The berries of many of the species of this genus are often made into a paste, and used in their native countries to intoxicate fish and birds, &c., in order to take them; and it is said that brewers use them to give their ale and porter an intoxicating quality. (*Don's Mill.*, i. p. 104.) The species are chiefly tropical, and only one that is hardy has yet been introduced into the British gardens.

⸙ 1. Co′cculus caroli`nus *Dec.* The Carolina Cocculus.

Identification. Dec. Prod., 1. p. 98.; Don's Mill., 1. p. 107.
Synonymes. Menispérmum carolìnum *Lin.*; Wendlánd*ia* populifòlia *Willd.*, *Pursh*, and *Dill.*; Andróphilax scándens *Wendl.*; Baumgárt*ia* scándens *Moench.*; Ménisperme de la Caroline, *Fr.*; Carolinischer Mondsaame, *Ger.*
Engravings. Dill. Elth., 223. t. 178. f. 219.; Wendl. Obs., 3. t. 16.; and our *fig.* 45.

Spec. Char., &c. Leaves cordate or ovate, entire, obtuse, and somewhat 3-lobed; under surface velvety pubescent. Male racemes floriferous from the base, female ones 3-flowered. (*Don's Mill.*, i. p. 107.) A twining shrub, a native of Carolina, Georgia, and Florida, in woods and hedges, as the black bryony is in England. The flowers are diœcious, but, according to Wendland, often hermaphrodite. Though ligneous in its native country, in cold countries it is often herbaceous or subherbaceous. The flowers, which appear in June and July, are greenish; and the berries, when ripe, are of a red colour. It was introduced into England in 1759, and is not uncommon in botanic gardens and the principal nurseries. Price, in London, 1*s.* 6*d.* a plant; at Bollwyller, ?; in New York, 1 dollar.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App. i. *Anticipated Menispermàceæ.*

In p. 175. are enumerated some genera and species belonging to this order which are natives of the Himalaya; and in p. 176. some that are natives of China and Japan, which, it is considered, would be found half-hardy in our gardens.

CHAP. VIII.

OF THE HARDY LIGNEOUS PLANTS OF THE ORDER *BERBERA`CEÆ.*

This order is distinguished from other thalamiflorous ones by the following traits. Sepals usually 6, in two whorls, deciduous, and furnished with petal-like scales on the outside. The petals are equal in number with the sepals; and the stamens equal in number with the petals, and opposite to them. The anthers "open by reflexed valves; that is to say, the face of each cell of the anther peels off except at the point, where it adheres as if it were hinged there;" a structure so remarkable, Dr. Lindley observes, as to be "found in no European plants except *Berberàceæ* and the laurel tribe." (*Penny Cyc.*, vol. iv. p. 259.) The genera containing the hardy species are two, *Bérberis* and Mahòn*ia*. They are shrubs, or low trees, inhabitants of Europe, Asia, and of North and South America; but they are not met with in the interior of Africa, or the South Sea Islands. They are usually found in the temperate zones; but some of them inhabit high mountains within the tropics. The seeds are very tenacious of life, and, being small, and easily conveyed from one country to another, a number of new species have recently been introduced from Nepal and South America. The wood of some of the species is used for dyeing yellow; and the more common have been admitted into the materia medica, from the days of Galen to the present time, on account of their bitter and astringent properties. All the species are ornamental, and those of them which are evergreen eminently so. They are all readily propagated by seeds, which most of them ripen in England, and also by side suckers and root suckers, which almost all the species produce in abundance. The fruit is generally edible, and abounds in the malic acid. The genera and species of this order have recently been arranged and described, in a masterly manner, by Dr. Lindley, in the *Penny Cyclopædia*; from which article, from *Don's Miller*, and from our own observations, we have drawn up this chapter. The distinctive characters of the two genera of *Bérberis* and Mahòn*ia* are as under: —

BE'RBERIS. Sepals 6, furnished on the outside with 3 scales. Petals 6, with 2 glands on the inside of each at the base. Stamens toothless. Berries 2—3-seeded. (*Don's Mill.*, i. p. 114.) Flowers in simple, mostly pendulous, racemes; in some species solitary. Leaves undivided.

MAHÒN*IA*. Sepals 6, furnished on the outside with 3 scales. Petals 6, without glands on the inside. Stamens furnished with a tooth on each side, at the top of the filament. Berries 3—9-seeded. (*Ibid.*) Flowers in erect racemes, that are disposed several together in a panicle. Leaves pinnate.

GENUS I.

BE'RBERIS Lin. THE BERBERRY. *Lin. Syst.* Hexándria Monogýnia.

Identification. Lin. Gen., 442.; Dec. Prod., 1. p. 105.; Don's Mill., 1. p. 114.
Synonymes. Pipperidge Bush; E'pine vinette, *Fr.*; Berberitze, *Ger.*
Derivations. *Berberys* is the Arabic word used for this plant by Averrhoes and other writers on medicine; but some persons derive the name from the Greek word *berberi*, signifying a shell, from the leaves of the common species having a hollow surface. Bochart says that the word *Bérberis* is derived from the Phœnician word *barar*, which signifies shining like a shell, from their shining leaves. Gerard says that the word Berbery is a corruption of *amyrberis*, the name given to the plant by Avicenna. Du Hamel says that *Bérberis* is derived from an Indian word signifying mother of pearl. Pipperidge bush, or piprage tree, Gerard says, is Dr. Turner's name for the plant, and it is still given to it in Cambridgeshire. E'pine vinette signifies the acid, or sorrel, thorn, from the taste of the fruit and leaves.

Gen. Char. *Sepals* 6, guarded on the outside by 3 scales. *Petals* 6, with 2 glands on the inside of each. *Stamens* toothless. *Berries* 2—3-seeded. *Seeds* 2, rarely 3, laterally inserted at the base of the berries, erect, oblong, with a crustaceous coat and fleshy albumen. *Cotyledons* leafy, elliptical. *Radicle* long, capitellate at the tip. (*Don's Mill.*, i. p. 114.) *B.* heterophýlla *Juss.* has toothed stamens.

Description. The species are all shrubs of from 2 ft. or 3 ft. to 18 ft. or 20 ft. in height, in a wild state; some of them attaining the height of 30 ft. in gardens. They all throw up numerous side suckers, and the stronger-growing species, if these were carefully removed, might be formed into very handsome small trees. In all the species the flowers are yellow. The fruit is generally red; but in some species it is black or dark purple, and in some varieties of the species it is white or yellow: it is always acid, and more or less astringent. "The spines of the common berberry are a curious state of leaf, in which the parenchyma is displaced, and the ribs have become indurated. They, as well as all the simple leaves of ordinary appearance, are articulated with the petiole, and are therefore compound leaves reduced to a single foliole; whence the supposed genus Mahòn*ia* does not differ essentially from *Bérberis* in foliage any more than in fructification." (*Lindley*, *Introd. to N. S.*, p. 31.) The species are generally thorny, and most of them flower freely in spring, bearing fruit abundantly in autumn.

The irritability of the stamens of the genus *Bérberis*, and more particularly of those of the common berberry, of *B.* canadénsis, *B.* sinénsis, and, perhaps, of all the species the flowers of which expand, is a very remarkable property, which was first discovered by Kölreuter; probably from observing that the stamens were put in motion by the proboscis of insects extracting honey from the flowers. Sir James Edward Smith has given a copious account of this phenomenon in the *Phil. Trans.*, vol. lxxviii. p. 158., and the last, and most clear and concise, description of it will be found to be that by Dr. Lindley, under the article *Bérberis*, in the *Penny Cyclopædia.* The stamens, "when the filament is touched on the inside with the point of a pin, or any other hard instrument, bend forward towards the pistil, touch the stigma with the anther, remain curved for a short time, and then partially recover their erect position. This is best seen in warm dry weather. After heavy rain, the phenomenon can scarcely be observed, owing, in all probability, to the springs of the filaments having been already set in motion by the dashing of the rain upon them, or to the flowers having been forcibly struck against each other. The cause of this curious action, like that of all other vital phenomena, is unknown. All that has been ascertained concerning it is this, that the irritability of the filament is affected differently by different noxious substances. It has been found by Messrs. Macaire and Marcet, that, if a berberry is poisoned with any corrosive agent, such as arsenic or corrosive sublimate, the filaments become rigid and brittle, and lose their irritability; while, on the other hand, if the poisoning be effected by any narcotic, such as prussic acid, opium, or belladonna, the irritability is destroyed by the filaments becoming so relaxed and flaccid, that they can be easily bent in any direction. It is difficult to draw from this curious fact any other inference than this, viz. that in plants, as well as in animals, there is something analogous to a nervous principle, which is more highly developed in some plants, or in some organs, than in others." (*Pen. Cyc.*, iv. p. 260.) According to Sir J. E. Smith, the purpose of this remarkable function in the stamens of the berberry is evident. "In the original position of the stamens the anthers are sheltered from rain by the concavity of the petals. Thus, probably, they remain till some insect comes to extract honey from the base of the flowers, and, thrusting itself between the filaments, unavoidably touches them in the most irritable part; and thus the impregnation of the germs is performed." (*Phil. Trans.*, lxxviii. p. 158.) All the species are easily propagated by seed, which most of them produce in abundance; those which do not are readily increased by the removal of their side suckers, or by layers. They will grow in any soil, though they mostly prefer one that is calcareous.

Though the species of this genus are commonly treated as shrubs, and these shrubs, from their numerous side suckers, have, in general, a rough, inelegant appearance; yet there are some of them which may be formed into the most beautiful and durable small trees that can be introduced into gardenesque scenery. The common berberry, when pruned up to a single stem to the height of 8 ft. or 10 ft., and all suckers from the root, and all side buds from the stem removed the moment they appear, will form a fine orbicular head with the extremities of the branches drooping; and this pendulous appearance will increase with the age of the tree. Such a tree, covered, as it will be every year, with yellow blossoms in the beginning of summer, and with bright scarlet fruit in autumn, may rank in beauty and value with the low trees of the genera Cratæ`gus, Cotoneáster, and *Amelánchier.*

A. *Leaves thin, deciduous. Flowers solitary.*

✿ 1. *B.* SIBI′RICA *Pall.* The Siberian Berberry.

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Identification. Pall. Fl. Ross., 2. p. 42.; Dec. Prod., 1. p. 108.; Don's Mill., 1. p. 117.; Pen. Cyc., 4. p. 260.
Synonymes. *B.* altàica *Pall.*; Vinettier de Sibérie, *Fr.*
Engravings. Pall. Fl. Ross., 2. t. 67.; and our *fig.* 46.

Spec. Char., &c. Spines 3—7-parted. Leaves lanceolate-obovate, ciliately serrated. Peduncles 1-flowered, shorter than the leaves. (*Don's Mill.*, i. 117.) — A small shrub, found in rocky places, on the hills and lower mountains of Altai, Siberia, &c., and introduced into England by Pallas in 1790. Pallas states that the priests of the Mongols, who also act as physicians, being taught by the Tunguti, use the bark of the trunk and the yellow pulpy matter of the root for various diseases; and that a decoction of the young twigs is sometimes applied with a pencil to the eyes as a charm. In British gardens this species is a low scrubby bush, seldom exceeding 2 ft. in height. Price, in London, 10*s.* 6*d.* each.

B. *Leaves thin, mostly deciduous. Flowers in Racemes.*

✿ 2. *B.* VULGA′RIS *L.* The common Berberry.

Identification. Lin. Sp., 472.; Dec. Prod., 1. p. 105.; Don's Mill., 1. p. 115.
Synonymes. Pipperidge Tree, *Dr. Turner*; E′pine vinette, *Fr.*; gemeine Berberitze, *Ger.*
Engravings. Eng. Bot., t. 49.; Willd. Baum., t. 39.; E. of Pl., 4922.

Spec. Char. Spines 3-parted. Leaves somewhat obovate, ciliately serrated. Racemes many-flowered, pendulous. Petals entire. (*Don's Mill.*, i. p. 115.)

Varieties. These are numerous. Those recognised by De Candolle and G. Don are as follows: —

- ✿ B. *v.* 2 *lùtea. The yellow*-fruited *common Berberry.* — Fruit yellow.
- ✿ B. *v.* 3 *álba. The white*-fruited *common Berberry.* — Fruit white.
- ✿ B. *v.* 4 *violàcea. The violet*-coloured-fruited *common Berberry.* — Fruit violaceous.
- ✿ B. *v.* 5 *purpùrea. The purple*-fruited *common Berberry.* — Fruit purple, leaves narrow, hardly ciliated. *B.* innominàta *Kielm.*
- ✿ B. *v.* 6 *nìgra. The black*-fruited *common Berberry.* — Fruit black; leaves oblong, ciliately serrated, serratures few. The fruit of this plant is said by Tournefort, who found it on the banks of the Euphrates, to be of delicious flavour.
- ✿ B. *v.* 7 *dúlcis. The sweet*-fruited *common Berberry.* — Fruit red, somewhat less acid than that of the common berberry. Leaves of a bright shining green. Native of Austria.
- ✿ B. *v.* 8 *aspérma. The seedless Berberry.* — Fruit destitute of seeds. Miller, and also Du Hamel, both say that suckers taken from this variety commonly produce fruit with seeds; that, as the tree grows older, the seeds become fewer, and that it is the age of the plant that at last causes the fruit to be seedless; in that case this plant must be considered more a variation than a variety. *B.* v. aspérma is said by Du Hamel to produce the best fruit for preserving; and it is from it that the delicious *Confitures d'E′pine vinette*, for which Rouen is so celebrated, are made. (*Nov. Duh.*, iv. p. 13.) Price, 2*s.* 6*d.* each.

All these varieties are in the garden of the London Horticultural Society.

Other Varieties. Dr. Lindley says, that "there is in the *Catalogues* a Canadian berberry, which appears to be nothing more than a common berberry, brought from North America; and also *Bérberis* daùrica and altàica, neither of which merits to be distinguished from *B.* vulgàris."

Description. In a wild state, the common berberry is seldom found higher than 4 ft. or 5 ft., but in a state of culture it may be grown to nearly 30 ft.

high. The stems are upright, and much branched towards the top; smooth, slightly grooved, covered with a whitish or ash-coloured bark, which is yellow within, and they have a large white pith. The main stem soon becomes so surrounded by side suckers as to be concealed by them; so that, even where the height of the plant is that of a tree, its character is still that of a bush. The blossoms are, in general, abundant, and produce a fine appearance in April and May; their smell is offensive when near, but not disagreeable at a short distance. The tree will live for two or three centuries, without increasing much in size. The wood is hard and brittle, of a yellow colour, but little used except for dyeing. The rate of growth, when the plant is young, is rapid; and, in consequence, in five or six years it will attain the height of 7 ft. or 8 ft.; but it grows slowly afterwards, unless the suckers are removed from it as they are produced. It is seldom seen above 10 ft. high; but there are examples of trees of it 30 ft. high, probably of 30 years' growth.

Geography and History. Found wild in most parts of Europe, and in many parts of Asia and America; in the warmer parts of those last countries, on mountains; in the colder parts of Europe in plains, as in Norway, near Christiania. The berberry is found on Mount Lebanon, and on Mount Etna; in which last situation it becomes a low shrub, in the last zone of vegetation, at the height of 7500 French feet above the level of the sea. In England it is found in indigenous woods and hedges, more especially on calcareous soils. It is so common in the hedges of Saffron Walden, in Essex, where corn grows frequently quite up to the hedge, that Professor Martyn refers to this circumstance, as a proof that the prejudice respecting its originating the mildew on wheat is unfounded. It is indigenous in Scotland and Ireland, but not very common in those countries. The plant is mentioned by Pliny; and, among moderns, seems first to have been recorded by Bauhin in his *Pinax*, and subsequently by all the writers on plants, under different names, till the time of Ray, who first called it *Bérberis;* which name was afterwards adopted by Linnæus, and by all the botanists since his time.

Properties and Uses. The inner bark both of the stems and roots affords a yellow dye. The leaves are agreeably acid, and, according to Gerard, were used in his time "to season meat with, and instead of a salad, like sorrel." The berries are so acid, that birds seldom touch them. They are not eaten raw, but are excellent when preserved with sugar in syrup, or candied. They are also made into jelly and rob, both of which are not only delicious to the taste, but extremely wholesome; and they are pickled in vinegar, when green, as a substitute for capers. In some countries in the north of Europe, the berries are used instead of lemon for flavouring punch, &c.; and when fermented it produces an acid wine, from which tartar is procured by evaporation. They are also in general use for garnishing dishes. Medicinally, the berries, leaves, and roots are powerfully acid and astringent; the bark is purgative and tonic; and the berries, when bruised and steeped in water, make a refreshing drink in fevers. The astringent principle is so abundant in the bark, that it is used for tanning leather in Poland; and it dyes it of a fine yellow at the same time. A decoction of the bark is said to make a good gargle to strengthen the throat and gums. The plant is cultivated in gardens as a fruit tree or fruit shrub; and the variety, or rather variation, in which the seeds are said to be wanting, and that in which the fruit is sweet, are recommended in preference. The plant makes an excellent hedge; but there exists a prejudice against it among agriculturists, from its supposed influence in producing blight, or mildew, on the corn adjoining it. This opinion, though totally unfounded, is of unknown antiquity. It appears to have been first considered as an erroneous prejudice by Du Hamel, who assures us that it is totally void of foundation; and Broussonet and other botanists subsequently proved the fact; but the most scientific refutation of the error was given by Dr. Greville, in his *Scottish Cryptogamic Flora.* In that excellent work Dr. Greville has shown that the mildew which attacks the berberry (*Æcídium Berbéridis* Pers., *fig.* 47.) is quite different from any of the *Fúngi* which are found on corn. The berberry mildew, when magnified, is found to consist of a number of small orange cups, with a white film over each. When ripe these films burst, and the tops of the cups assume a ragged uneven appearance, in which state they look like white *Fúngi*. The cups are filled with innumerable little cases, containing seeds, or sporules, and these constitute the bright orange powder that is seen on the leaves and flowers of the common berberry. " Among the many beautiful objects that are to be met with in the lower and more imperfect tribes of plants," Dr. Lindley observes, " it is difficult to find one more worthy of an attentive examination than the Æcídium *Berbéridis*." The blight on corn is generally a species of *U*rèdo, and does not correspond in botanical characters with the Æcídium.

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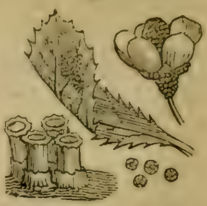

Propagation and Culture. The original species is propagated in the nurseries by seeds, and the varieties by suckers. For ordinary purposes, no plant requires less culture; but, to produce large fruit, it should be planted in a deep, well manured, somewhat calcareous soil, and be constantly freed from side suckers. The racemes of the blossoms, also, should be thinned out, in order by reducing the number of bunches of fruit, to increase its size. When the berberry is intended to become an ornamental tree, it should be trained with a straight stem to the height of 8 ft. or 10 ft., and then suffered to branch out, thinning out the shoots where necessary, and destroying every sucker as it appears. So treated, it forms a singularly beautiful small tree, of great duration.

Diseases, &c. The common berberry is very subject to the mildew, Æcídium *Berbéridis* Pers., before described.

Statistics. The berberry is to be found in all European gardens that pretend to have a complete collection of fruit trees, and in most shrubberies. The original species is to be procured in all nurseries, and the varieties in some of them. Seedlings of the species, in the London nurseries, are 8*s*. a thousand; and transplanted plants 25*s*. a thousand: at Bollwyller, the varieties are a franc each; plants of the species, 50 cents each: in New York, ?.

3. *B.* CANADE'NSIS *Mill.* The Canadian Berberry.

Identification. Pursh's Fl. Amer., Sept., 1. p. 219.; Nutt. Gen. Amer., 1. 210.; Dec. Prod., 1. p. 106.; Don's Mill., 1. p. 115.
Synonymes. *B.* vulgàris *Mx. Fl. Bor. Amer.* 1. p. 205.; *B.* vulgàris var. canadénsis *Martyn's Mill.*, No. 1.
Engravings. Hayne Abbild., t. 63.; and our *fig.* 48. after that author.

Spec. Char., &c. Spines 3-parted. Leaves obovate-oblong, remotely serrated, upper ones nearly entire. Racemes many-flowered, nodding. (*Don's Mill.*, i. p. 115.) A shrub, or low tree, with yellow flowers, from April to June. Cultivated in 1759. Height 5 ft. It is found in North America, on fertile hills and among rocks, especially in the Alleghany Mountains, from Canada to Carolina, and also in Tennessee. The berries are said by Pursh to be more fleshy and less acid than those of *B.* vulgàris. The same opinion prevails in the United States as in England, as to the berberry producing mildew on wheat. From the appearance of this alleged species in the garden of the London Horticultural Society, we are induced to consider it only a variety of *B.* vulgàris. De Candolle thinks it for the most part intermediate between *B.* vulgàris and *B.* chinénsis. Plants, in London, are 1*s*. 6*d*. each; at Bollwyller, 1 franc; and in New York, 15 cents.

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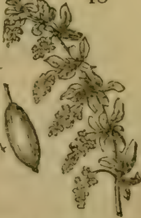

4. *B.* EMARGINA'TA *Willd.* The emarginated-*petaled* Berberry.

Identification. Willd. Enum., 1. p. 395.; Dec. Prod., 1. p. 105.; Don's Mill., 1. p. 115.
Synonyme. Ausgerandete (serrated) Berberitze, *Ger.*
Engravings. Hayne Abbild., t. 62.; and our *fig.* 49.

Spec. Char., &c. Spines 3-parted. Leaves lanceolate-obovate, ciliately serrated.

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Racemes scarcely pendulous, shorter than the leaves; petals emarginate. (*Don's Mill.*, i. p. 115.) A shrub closely resembling *B.* vulgàris, of which it is, doubtless, only a variety; but it is one half smaller in all its parts, and has the petals emarginate. It is found wild in Siberia, and was introduced into England in 1820. In the garden of the London Horticultural Society it has attained the height of 7 ft. in 10 years. Price, in the London nurseries, 2*s.* a plant; at Bollwyller, 2 francs; and in New York, ?.

❦ 5. *B.* IBE'RICA *Stev.* The Iberian Berberry.

Identification. Stev. and Fisch. in Litt.; Don's Mill., 1. p. 115.; and Lindl. in Pen. Cyc., 4. p. 261.
Synonymes. *B.* vulgàris ? v. ibérica *Dec. Syst.*, 2. p. 6.; *B.* sinénsis *Wal.*
Engravings. Dend. Brit., t. 26.; and E. of Pl., 4928., as *B.* sinénsis; and our *fig.* 50.

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Spec. Char., &c. Spines simple, and 3-parted; leaves obovate-oblong, quite entire. Racemes many-flowered; petals entire. (*Don's Mill.*, i. p. 115.) A shrub closely resembling the common berberry, but, according to Dr. Lindley, readily distinguished from it by its smaller leaves, and its almost upright racemes. The berries are dark purple. It is a native of Iberia, whence it was brought to England in 1790. Height 5 ft.

❦ 6. *B.* SINE'NSIS *Desf.* The Chinese Berberry.

Identification. Desf. Catal. Hort. P., 150.; Dec. Prod., 1. p. 106.; Don's Mill., 1. p. 115.
Synonyme. *B.* vulgàris *Thunb. Jap.*, 1. p. 146.

Spec. Char., &c. Spines 3-parted. Leaves oblong, obtuse, entire, or the lower ones a little toothed. Racemes many-flowered, nodding. (*Don's Mill.*, i. p. 115.) A shrub closely resembling *B.* vulgàris, but seldom growing more than 4 ft. or 5 ft. high. The berries are oval, of a deep red colour (*Dec.*), or, according to Dr. Lindley, of a dirty red; 1-2-seeded. It is a native of China, where it was found during Lord Macartney's embassy, between Pekin and Gehol; and it was introduced into England in 1800. There are plants of it in the garden of the London Horticultural Society, and in the arboretum of Messrs. Loddiges. Dr. Lindley observes that it is more common in French than in English gardens, and that it most resembles *B.* ibérica.

❦ 7. *B.* CRE'TICA *L.* The Cretan Berberry.

Identification. Lin. Sp., 472.; Dec. Prod., 1. p. 106.; Don's Mill., 1. p. 115.
Synonymes. *B.* crética buxifòlia *Tourn.*; Vinettier de Crète, *Fr.*; Cretische Berberitze, *Ger.*
Engravings. Fl. Græc., t. 242.; Candian Berberry.

Spec. Char., &c. Spines 3—5-parted. Leaves oval-oblong, entire, or somewhat serrated. Racemes 3—8-flowered, rather shorter than the leaves. (*Don's Mill.*, i. p. 115.) A low shrub, seldom exceeding 3 ft. or 4 ft. in height, with numerous suckers, forming a compact bush, densely covered with leaves intermixed with spines. The leaves are produced without any obvious order, and in their shape they resemble those of the narrow-leaved variety of the common box. The berries are ovate, black, 2-seeded, more astringent than acid; stigma on a very short style. It is a native of Crete, or Candia, of Cyprus, and also of Japan; and it has been cultivated in England since 1759; but, being a plant of no great show, it is not very common in gardens or nurseries. There are plants of this species in the arboretum of Messrs. Loddidges, and also in the arboretum of Messrs. Buchanan and Oldroyd, at Camberwell. It is also in the garden of the Horticultural Society. Dr. Lindley observes of it, that "it is a dwarf scrubby bush, looking like a starved specimen of the common berberry." Price, in London, 1*s.* 6*d.* a plant; at Bolwyller, 1 franc 50 cents; in New York, ?.

Variety.

♣ B. *c.* 2 *serratifòlia* Poir. *The serrated-leaved Cretan Berberry.*— Leaves ciliately serrated.

♣ 8. *B.* CRATÆ′GINA *Dec.* The Cratægus-like Berberry.

Identification. Dec. Syst., 2. p. 9.; Don's Mill., 1. p. 116.

Spec. Char., &c. Spines simple. Leaves oblong, reticulated, hardly serrated. Racemes many-flowered, crowded, spreading, scarcely longer than the leaves. (*Don's Mill.*, i. p. 116.) Native of Asia Minor. " Allied to *Bérberis* crética and sinénsis " (*Dec.*): said to be like *B.* vulgàris by *G. Don.* " Described by De Candolle from specimens collected in Asia Minor. Young plants, of what is said to be this species, are in the gardens, but they have not yet flowered." (*Lindl.*) Where we meet with many doubts, we are always disposed to simplify; and, from the geography of this species, we think it highly probable that it will turn out to be a mere variety of *B.* vulgàris.

C. *Leaves leathery, evergreen or sub-evergreen. Flowers solitary or in Clusters.*

♣ 9. *B.* DU′LCIS. The sweet-*fruited* Berberry.

Identification. Swt. Brit. Fl.-Gard.; Lindl. Pen. Cyc., 4. p. 261.
Engravings. Swt. Brit. Fl. Gard. 2d ser., t. 100.; and our *fig.* 51.

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Spec. Char., &c. Spines long, slender, simple, or 3-parted. Leaves obovate obtuse, with or without a bristly point, quite entire, glaucous on the under side. Flowers solitary, on slender stalks, twice as long as the leaves. (*Lindl., Pen. Cyc.*, 4. p. 216.) This species, or alleged species, is not recognised by De Candolle or George Don: it is said by Dr. Lindley to be " a native of the south-western part of South America, from the Straits of Magellan to Valdivia, where it forms a small evergreen bush. The species has been some years in this country; but it is at present very rare." (*Pen Cyc.*, 5. p. 261.) There are plants in the Hort. Soc. Garden between 2 ft. and 3 ft. high; and it is to be procured at Low's Nursery, Clapton, where it flowered in March, 1831. It was sent to Mr. Low by Mr. Anderson, the collector attached to Capt. King's expedition, from the Straits of Magellan. In *Sweet's Flower-Garden*, where it is figured, it is said that, in its native country, " the fruit is used, both green and ripe, as we use gooseberries, for making pies and tarts, and preserves, for which it is most excellent. The berries are round and black, being about the size of a black currant, and are produced in great abundance. The flowers are very handsome, being of a bright yellow, and nodding: they make a very elegant appearance." (*Swt. Fl.-Gard.*, 2d s., i. t. 100.) It is quite hardy, and evergreen; but there is a deciduous variety, also possessed by Mr. Low, which, by some, is supposed to be a distinct species.

♣ 10. *B.* HETEROPHY′LLA *Juss.* The various-leaved Berberry.

Identification. Juss. in Poir. Dict., 8. p. 622.; Dec. Prod., 1. p. 108.; Don's Mill., 1. p. 117.; Lindl., Pen. Cyc., 4. p. 261.
Synonymes. *B.* ilicifòlia *Forst.*; *B.* triscupidàta *Smith.*
Engraving. Hook Exot. Fl., 1. t. 14.; and our *fig.* 52.

Spec. Char., &c. Spines 3-parted. Leaves ovate-lanceolate, glabrous, some of them entire, others furnished with 3 pungent teeth. Pedicels solitary, 1-flowered, hardly longer than the leaves. Filaments toothed. (*Don's Mill.*, i. p. 117.) This species Dr. Hooker describes as a shrub about 3 ft. in height, much branched, and the older branches covered with dark wrinkled

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bark. The leaves clustered, and of two kinds; the old ones terminated with a sharp spinose point, and having a lateral spinule on each side, above the middle, and the younger ones being pale green, unarmed, and having their margins entire and softish. The old leaves are also quite rigid, dark green, and shining. The flowers are solitary, about the size of a pea, and of an orange-yellow colour. (*Exot. Fl.*, i. t. 14.) Dr. Hooker also observes, that this species " departs from the generic character of De Candolle, inasmuch as the calyx has no scales at its base, nor are the filaments destitute of teeth, for there are two most distinct ones just beneath the anther." This shrub is a native of the Straits of Magellan, where it was discovered by Commerson; but when, and by whom, it was introduced in our gardens, Dr. Hooker informs us, is not known. According to Dr. Lindley, it is " an inelegant bush, about 3 ft. high, bare of leaves, and having nothing but its rarity to recommend it." It is the *B. ilicifòlia* of English gardens.

♣ 11. *B.* EMPETRIFO'LIA *Lam.* The Empetrum-leaved Berberry.

Identification. Lam. Ill., t. 253.; Dec. Prod., 1. p. 107.; Don's Mill., 1. p. 117.; Pen. Cyc., 4. p. 261.
Engraving. Lam. Ill., t. 253. fig. 4.

Spec. Char., &c. Spines 3-parted. Leaves linear, quite entire, with revolute margins. Pedicels 1—2, 1-flowered. (*Don's Mill.*, i. p. 117.) According to Dr. Lindley, the leaves are collected in bundles in the axils of the spines, and the pedicels of the flowers are about as long as the leaves. " A very curious and pretty plant, found wild from the Cordilleras of Chili to the southern point of the American Continent, in subalpine woods. In general aspect it is much more like a heath than a berberry, seldom exceeding 2 ft. in height. It has been some years in the Horticultural Society's Garden, and is in Young's Nursery at Epsom, and in the Fulham Nursery, but is to be found in few others. It flowers in December, and is said, in *Sweet's Brit. Fl.-Gard.*, 2d series, t. 100., to have flowered at Low's Nursery, Clapton.

D. *Leaves leathery, evergreen or sub-evergreen. Flowers in Racemes.*

♣ 12. *B.* FLORIBU'NDA *Wall.* The many-flowered Berberry.

Identification. Wall. MSS.; Don's Mill., 1. p. 115.; Pen. Cyc., 4. p. 261.
Synonymes. " Out of accidental variations of this species, and its mode of leafing and flowering, the spurious species called *B.* affìnis and *B.* ceratophýlla have been constituted. By Dr. Wallich, in his distribution of the herbarium of the East India Company, *B.* floribúnda has been mistaken for *B.* aristàta." (*Pen. Cyc.*, 4. p. 261.)

Spec. Char., &c. Spines 3-parted and very stiff. Leaves oblong or oblong-lanceolate, nearly entire, or toothed in various degrees, sometimes very deeply and coarsely veined; flowers in long, loose, slender racemes. (*Pen. Cyc.*, iv. p. 261.) This species is supposed to grow about 10 ft. high in Nepal, and, as Dr. Lindley observes, is, " apparently, extremely common in the whole of the north of India, where it forms a tall bush, varying considerably in the form and size of the leaves, and in the degree in which they are toothed, but always well marked by its slender, pendulous, or erect racemes of flowers, which are much longer than the leaves, and in no degree corymbose. It is to be found occasionally in the more choice collections in this country." (*Pen. Cyc.*, iv. p. 261.)

♣ 13. *B.* ASIA'TICA *Roxb.* The Asiatic Berberry.

Identification. Roxb. in Dec. Syst., 2. p. 13.; Dec. Prod., 1. p. 107.; Don's Mill., 1. p. 116.; Pen. Cyc., 4. p. 261.
Synonymes. *B.* tinctòria *Lech.*; the Raisin Berberry *Pen. Cyc.*
Engraving. Delcss. Icon. sel., 2. t. 1.

Spec. Char., &c. Spines trifid, or simple. Leaves oval, cuneated or elliptical, mucronate, smooth, under surface glaucous, entire or spinulosely toothed.

Racemes short, many-flowered, corymbose, shorter than the leaves. Pedicels elongated, 1-flowered. Berries oval. (*Don's Mill.*, i. p. 116.) A vigorous-growing shrub, with numerous luxuriant side suckers, approaching in vigour those of *B.* aristàta; but the leaves resembling those of *B.* heterophýlla. It is a native of the East Indies and Nepal, and was introduced into England in 1820. *B.* asiática, Royle observes, "is found on the Neelgherries, and was called, by M. Lechenault de la Tour, *B.* tinctòria, from the use to which it has been applied; and it has been proved by the experiments of M. Vauquelin to be inferior to few woods for dyeing a yellow colour." (*Royle's Illust.*, p. 63.) According to Dr. Lindley, the fruit is round, covered over with a thick bloom, and has altogether the appearance of the finest raisins. In the garden of the London Horticultural Society the plants of this species are about 7 ft. high, and they flower and fruit freely. They are easily distinguished from *B.* aristàta, by their very short racemes. Plants 3*s.* 6*d.* each.

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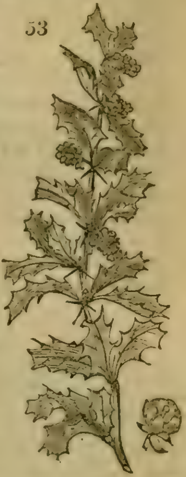

14. *B.* DEALBA'TA *Lindl.* The whitened-*leaved* Berberry.

Identification. Bot. Reg., t. 1750.; Pen. Cyc., 4. p. 261.
Synonyme. *B.* glaúca *Hort.*
Engraving. Bot. Reg., t. 1750.; and our *fig.* 53.

Spec. Char., &c. Spines scarcely any. Leaves roundish, coarsely toothed, rather glaucous, white beneath. Racemes very short and compact, pendulous. (*Pen. Cyc.*, iv. p. 261.) A native of Mexico, whence it was introduced into England by the London Horticultural Society in ? 1830. "It is a tall slender evergreen bush, with deep brown branches, and scarcely any spines. The flowers, which appear in December, are yellow, and the fruit red. The leaves are sometimes wedge-shaped and 3-toothed, but more frequently are nearly round, with two or three spiny teeth on every side." (*Pen. Cyc.*, iv. p. 261.) A curious and beautiful species, well deserving of cultivation. There are plants in the Fulham Nursery 21*s.* each.

15. *B.* ARISTA'TA *Dec.* The bristled-*tooth-leaved* Berberry.

Identification. Hook. Exot. Flor., 2. t. 98.; Dec. Prod., 1. p. 106.; Don's Mill., 1. p. 115.
Synonymes. *B. Chítria* Buch.; *B.* angustifòlia *Roxb.*; *B.* sinénsis *Desf.*
Engravings. Hook. Exot. Flor., t. 98.; Bot. Reg., t. 729.; and our *fig.* 54.

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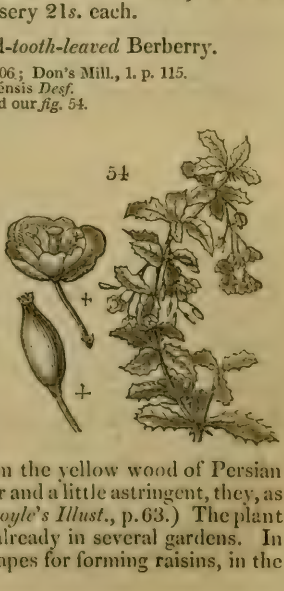

Spec. Char., &c. Lower spines 3-parted, simple; leaves obovate-acute, tapering much to the base, ending in a mucro (prickly point) at the apex, membranous, smooth on both sides, serrated, with 4 or 5 bristly teeth. Racemes nodding, many-flowered, longer than the leaves. Berries oblong. (*Don's Mill.*, i. p. 115. adapted.) A robust shrub, very distinct from any of the preceding species or varieties, growing with extraordinary vigour, and capable of being formed into a very handsome small tree. It is a native of Nepal, and is found on mountains at from 5000 ft. to 8000 ft. of elevation, flowering there in May. The root and wood are of a dark yellow colour, and form the yellow wood of Persian authors; they are used as a dye, and, being bitter and a little astringent, they, as well as the bark, are employed in medicine. (*Royle's Illust.*, p. 63.) The plant was introduced into England in 1820, and is already in several gardens. In Nepal, the fruit of this species is dried, like grapes for forming raisins, in the sun. After being once established, plants of this species grow with extraordinary rapidity till they attain the height of 8 ft. or 10 ft., after which they continue throwing up suckers, and some of these which we have measured in the Fulham Nursery, and in the Goldworth arboretum, were 9 ft. long, and, at the lower end, three fourths of an inch in diameter. It is a most desirable plant, and calculated to produce a splendid effect, both when in flower and when in fruit, upon an open lawn. As a rapid grower, it ought not to be planted near slow-growing shrubs or trees. Price of plants, in the London nurseries, 1*s.* each; at Bollwyller, ?; in New York, ?.

Varieties. Mr. Royle has the following remarks. "Under *B.* aristàta, I conceive two species have been included, or at least two such very distinct varieties as to require particular notice. These are distinguished by the natives, apt to confound things together, by the names of *kushmul* and *chitra.* The former growing at as low elevations as 3000 feet. and therefore easily acclimated in the plains of India, has the leaves and branches pale-coloured, and more thorny; the flowers more numerous, racemes erect, appearing earlier in the season, and having less pleasant-tasted fruit: while *chitra,* which I conceive to be the true *B.* aristàta, and have not found below 5000 feet of elevation, has brownish-coloured branches, smooth, shining, almost entire leaves, each flower much larger than those of *kushmul,* though less numerous than those on each of the drooping racemes." (*Illust. &c.*, p. 64.)

App. i. *Additional Species of* Bérberis.

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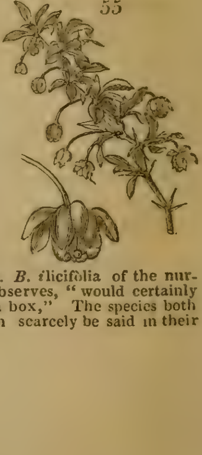

B. *Wallich*iàna *Dec.*, synon. àtro-víridis. A native of the higher parts of Nepal, and, according to Dr. Lindley, "exceedingly well worth procuring, on account of its deep-green evergreen leaves," which will, in all probability, prove hardy. It is figured in Wallich's *Plant. Asiat. Rar.*, t. 243. — B. *kunawurénsis*, a native of the Himalaya, is also a very desirable species. — B. *actinacántha* is mentioned by Dr. Lindley as a very common plant, between Valparaiso and Santiago, which might be easily introduced: besides which, he says, there are other evergreen South American species of great beauty. "Some from the south of Chili particularly were found by Mr. Bridges near Valdivia, with shining holly-like leaves, long racemes of orange-coloured flowers, and young branches covered with rusty down." (*Penny Cyc.*, iv. p. 261.) — B. b*uxifòlia* Lam. Ill., t. 253. f. 3., and our *fig.* 55., a small twisted shrub, with bluish purple berries, a native of the Straits of Magellan, would be a desirable acquisition, as it is doubtless as hardy as *B.* empetrifòlia, p. 306. In the garden of the Horticultural Society there is a berberry raised from seeds received from M. Ledebour, under the name of *B.* ilicifòlia, which has not yet flowered, but which is entirely different from the *B.* heterophýlla, synon. *B.* ilicifòlia of the nurseries. Seeds of berberries from distant countries, the same authority observes, "would certainly reach England in safety, if mixed with tenacious earth and rammed into a box," The species both of *Bérberis* and Mahònia are so eminently beautiful, that too much can scarcely be said in their favour.

GENUS II.

MAHO'NIA Nutt. THE MAHONIA, *or* ASH BERBERRY. *Lin. Syst.* Hexándria Monogýnia.

Derivation. Named by Nuttall in honour of *Bernard M'Mahon* a seedsman at Philadelphia, the author of the *American Gardener's Calendar*, and an ardent lover of botanical science.
Identification. Nutt. Gen. Amer., 1. p. 307.; Dec. Prod., 1. p. 108.; Don's Mill., p. 117.
Synonymes. Bérberis of authors; Odostèmon *Raf.*; Ash Berberry *Pen. Cycl.*

Gen. Char. *Sepals* 6, guarded on the outside by three scales. *Petals* 6, without glands on the inside. *Stamens* furnished with a tooth on each side at top of the filament. *Berries* 3—9-seeded. (*Don's Mill.*, i. p. 118.) — The species are elegant evergreen shrubs with yellow flowers and pinnate leaves. The latter resemble pretty much those of the ash, and hence, doubtless, the name of ash berberry. Natives of the north-west coast of America, and also of Nepal, and perhaps Japan. Though some botanists think that the characters ascribed to this genus, and those ascribed to *Bérberis*, as exhibited in p. 229., are not sufficient to keep them separate as genera; yet the habits of the species of one, as to the mode of growth, foliage, and inflorescence, are so distinct from those of the other, as to induce us to adopt Mahòn*ia*. The species in British gardens are all of comparatively slow growth, and admit but of slow multiplication by layers, and scarcely at all by cuttings. Some of them, however, seed freely, and are readily propagated in that way. Four species have been introduced, and they are described by Dr. Lindley, in the *Penny Cyclopædia*, as being included in a section of the genus *Bérberis*.

■ 1. M. FASCICULA`RIS *Dec.* The crowded-*racemed* Mahonia, *or Ash Berberry*.

Identification. Hook. Fl. Bor. Amer., 1. p. 28.; Dec. Prod., 1. p. 108., and Syst., 2. p. 19.; Don's Mill., 1. p. 118.

Synonymes. *Bérberis* pinnàta *Lag.*, *Bot. Reg.*, t. 702., and *Bot. Mag.*, 2d edit. vol. 1. t. 88.; *B.* fasciculàris *Pen. Cyc.* In the same work it is stated that Mahòn*ia* diversifòlia is the same as this species; though it is figured and described by Sweet, as a species from Monte Video: see *Swt. Br. Fl.-Gar.*, 2d series, t. 56.

Engravings. Ker. Bot. Reg., t. 702.; Kth. Nov. Sp. Amer., 5. p. 71. t. 434.; Bot. Mag., t. 2396.; and our *fig.* 56.

Spec. Char., &c. Leaves of 3—6 pairs with an odd one, the lowest pair near the base of the petiole. Leaflets ovate-lanceolate, rather distant, one-nerved, spiny-toothed, with 4 or 5 teeth on each side. Racemes nearly erect, much crowded. Filaments bidentate. (*Don's Mill.*, i. p. 118., adapted.) A very handsome tall evergreen shrub, which attains, in British gardens, especially if against a wall, the height of 8 or 10 ft. and produces its yellow flowers in abundance, from the middle of March to the middle of May. "Perhaps the most showy of all the family." (*Bot. Mag.*, 2d edit. vol. i. p. 48.) It is found in the mountainous parts of California and Mexico. It is readily distinguished at a distance from the other mahonias, by the glaucous green and subdued tone of colour of its leaves; those of all the others being of a darker green, and more or less shining. The plant is rather too tender to be treated as a bush, unless some slight protection be given to it during very severe frosts; but it will grow freely against a wall with scarcely any protection. There is a fine specimen of it in the London Horticultural Society's Garden, more than 8 ft. high. In the nurseries, plants are at present rather scarce, and cost from 5*s*. to 7*s*. each.

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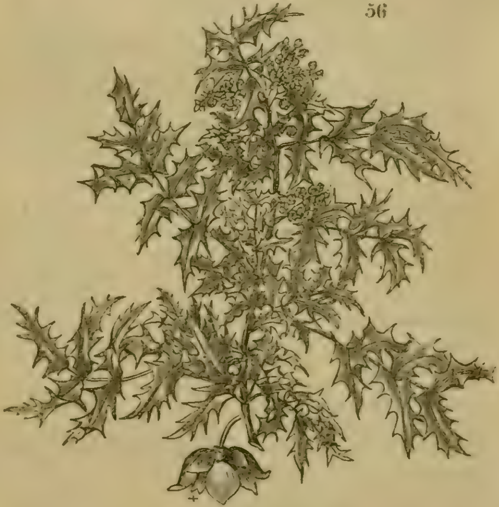

■ 2. M. AQUIFO`LIUM *Nutt.* The Holly-leaved Mahonia, *or Ash Berberry*.

Identification. Nutt. Gen. Amer., 1. p. 212.; Dec. Prod., 1. p. 108.; Don's Mill., 1. p. 118.

Synonyme. *Bérberis* Aquifòlium *Ph.* and *Pen. Cyc.*

Engravings. Pursh. Fl. Amer. Sept., 1. t. 4.; Bot. Reg., t. 1425.; and our *fig.* 57.

Varieties. One variety, *M. A. nutkàna* Dec., is mentioned by De Candolle (*Prod.*, i. p. 108.); and another, found at the junction of the Portage river with the Columbia, by G. Don. (*Don's Mill.*, i. p. 118.)

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Spec. Char., &c. Leaves in 4 pairs of leaflets with an odd one, the lower pair distant from the base of the petiole; leaflets ovate, approximate, cordate at the base, one-nerved, spiny-toothed, with 9 or 6 teeth on each side. Racemes erect, and much crowded. Filaments bidentate. (*Don's Mill.*, adapted.) One of the handsomest of hardy evergreen shrubs, attaining the height of 6 ft. in 6 years, quite hardy, producing a profusion of bunches of yellow flowers during April and May. It is a native of the north-west coast of America, from New Albion to Nootka Sound, growing in rich vegetable soil among rocks, or in woods, where it forms a thick and rich under-growth. It was introduced into England in 1823, and is to be found in all good collections. According to Dr. Lindley, it is "perhaps the handsomest hardy evergreen we yet possess. Its foliage is of a rich, deep, shining green, becoming purple in the winter; it bears fruit in some abundance, which consists of clusters of roundish black berries, having their surface covered with a rich violet bloom. It most resembles M. fasciculàris, from which its large shining leaves at once distinguish it." (*Penny Cyc.*, iv. p. 262.) This species is propagated very slowly by layers, and, for some years, plants were sold in the nurseries at ten guineas each. Lately, however, a number of ripe seeds have been produced in England, or imported from America through the Hudson's Bay Company; and from these, many young plants have been raised, in the Epsom and other nurseries; so that small plants may now be obtained for *5s.* each, and in a few years they will, no doubt, not cost half that sum. In Prince's *Catalogue* for 1825, the price is stated as 25 dollars (*5l. 5s.*) each.

♣ 3. M. NERVO`SA *Nutt.* The nerved-*leaved* Mahonia, *or Ash Berberry.*

Identification. Nutt. Gen. Amer., 1. p. 212.; Don's Mill., 1. p. 118.
Synonymes. *Bérberis* nervòsa *Ph.*; Mahònia glumàcea *Dec.*; *Bérberis* glumàcea *Pen. Cyc.*
Engravings. Pursh. Fl. Amer., 1. t. 5.; Bot. Reg., t. 1426.; and our *fig.* 58.

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Spec. Char., &c. Leaves of 5—6 pairs, with an odd one, the lower pair distant from the petiole; leaflets ovate, acuminated, and remotely spiny-toothed, somewhat 3—5-nerved, with 12 or 14 teeth on each side; racemes elongated; filaments bidentate. (*Don's Mill.*, i. p. 118.) An evergreen undershrub, in its native habitats seldom exceeding the height of 3 ft., and producing its yellow flowers in October, succeeded by roundish fruit, of a glaucous-purple colour, and having an insipid taste. The plant is found in shady pine woods, on the north-west coast of North America, along the river Columbia. According to Dr. Lindley, the stem of this species does not grow more than 6 in. or 8 in. high, and is, in fact, shorter than its leaves. The petioles of the leaves, he says, " are jointed at every pair of leaflets, in the manner of a bamboo stem." The plant is hardy, and will thrive in a shady border of peat soil. It was introduced into England in 1822, and may be seen in the London Horticultural Society's garden, but it is not yet extensively distributed. In London, plants cost 10*s*. 6*d*. each.

4. M. RE`PENS *G. Don.* The creeping-*rooted* Mahonia, *or Ash Berberry.*

Identification G. Don. in Loud. Hort. Brit., No. 28182. ; and in Don's Mill., 1. p. 118.
Synonymes. *Bérberis* Aquifòlium, *Lindl. Bot. Reg.*, t. 1176. ; *Bérberis* rèpens *Pen. Cyc.*, iv. p. 262.
Engravings. Bot. Reg., t. 1176. ; and our *fig.* 59.

Spec. Char., &c. Leaflets 2—3 pairs, with an odd one, roundish-ovate, opaque, spiny-toothed. Racemes diffuse. Root creeping. Filaments bidentate. (*Don's Mill.*, i. p. 118.) A small branched evergreen shrub, seldom rising higher than 2 ft., with the leaves somewhat glaucous on both surfaces. The racemes of flowers are terminal, numerous, fascicled, diffuse, rising from scaly buds. The plant, in British gardens, produces a profusion of rich yellow flowers in April and May, but these have not yet been succeeded by fruit. Found wild on the east side of the Rocky Mountains of the west coast of North America, and perfectly hardy in British gardens. It is propagated by layers or suckers, but does not strike readily; and it has, in consequence, been but sparingly distributed. Price of plants, in London, 10*s*. 6*d*. each.

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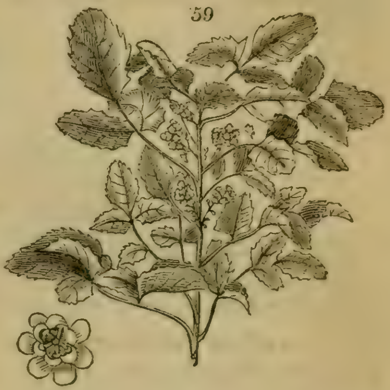


App. i. *Additional Species of Mahòn*ia.

*Mahòn*ia *nepalénsis* Dec., *Bérberis* nepalénsis in the list in p. 173., is an evergreen Nepal shrub, from 4 ft. to 6 ft. high, of great beauty, which, if it could be introduced, would probably be found as hardy as the American species. — *M. acanthifòlia*, if different from the foregoing, would also be very desirable. It is said to be a fine pinnated-leaved plant, with round black fruit, found on the Neelgherry Mountains of India, at the elevation of 8000 ft. M. nepalénsis grows at the height of 5000 ft. and 6000 ft., and attains, in shady situations, an elevation of 12 ft. It is also found on the Neelgherries, in 11° of north latitude. (*Royle's Illust.*) In the *Penny Cyclopædia*, it is suggested that M. nepalénsis " ought to be obtained from India at any cost, as it would in all probability succeed in this climate. — *M. tragacanthöides*, with not more than one or two pairs of leaflets, found along the banks of the river Kur, near Teflis; and *M.* caraganæ*fòlia*, a Chinese plant very like the last, having the points of the leaflets hardened into spines; well merit introduction." (iv. p. 262.) A plant is mentioned by Thunberg, under the name of *I*`lex japónica, which appears to be a Mahòn*ia*. It is found in the island of Niphon in Japan, and, as it would very likely prove hardy, ought by all means to be procured.

CHAP. IX.

OF THE HARDY LIGNEOUS SPECIES OF THE ORDER CRUCIA`CEÆ.

DISTINCTIVE Characteristics. Thalamiflorous. (*H. B.*) The order Cruciàceæ is readily recognised by the cruciform arrangement of the petals, which are always four, in conjunction with tetradynamous stamens, and the fruit a silique or silicle. Though there are several species, which, technically considered, are ligneous plants, such as *A*lýssum saxátile, *I*bèris sempervìrens, Cheiránthus *Chèiri,* and some others; yet, in a popular point of view, the only shrub included in the order is the *V*élla Pseùdo-*C*ýtisus.

GENUS I.

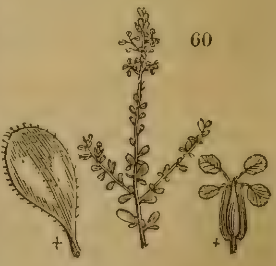
*V*E'LLA *L.* THE VELLA. *Lin. Syst.* Tetradynàmia Siliculòsa.

Derivation. **The word *V*élla is Latinised from the word *velar*, the Celtic name of the cress.**

Gen. Char. *Stamens* the 4 longer in 2 pairs, the 2 of each pair grown together. *Style* ovate, flat, tongue-shaped, at the tip of the silicle. *Silicle* ovate, compressed, its valves concave. *Partition* elliptic. *Cotyledons* folded, the embryo root disposed in the sinus of the fold. (*Dec. Syst.*)

1. *V*E'LLA PSEU`DO-*C*Y'TISUS *L.* False Cytisus, *or shrubby*, Cress-Rocket.

Identification. Lin. Sp., 895.; Dec. Prod., 1. p. 223.; Don's Mill., 1. p. 254
Synonymes. *V*élla integrifòlia *Sal.*; Faux-cytise, *Fr.*; strauchartige (shrubby) Velle, *Ger.*
Engravings. Cav. Ic., 1. 42.; and our *fig.* 60.



Spec. Char., &c. Petals yellow, with long dark purple claws. Larger stamens perfectly connate by pairs. (*Don's Mill.*, i. p. 254.) A low evergreen shrub, seldom exceeding 4 ft. in height, with glaucous green leaves, and bright yellow flowers, which appear in the beginning of April, and continue till the middle of May. It is a native of Spain, on gypsaceous hills about Aranjuez, where it was first observed by Minuart, and, afterwards, by Cavanilles. It was cultivated by Miller in 1759, as a greenhouse plant; but is found sufficiently hardy to stand the open air with a slight protection. It has stood for several years in the garden of the London Horticultural Society, planted on rockwork, where the dry soil renders protection unnecessary. It has also stood for a number of years in the open garden in the Hammersmith Nursery, and for five years in our garden at Bayswater, where it appears to be as hardy as the common azalea. It is a desirable shrub, on account of the early period at which it flowers; and also because it is a free flowerer. On a mound of rockwork it would form a most ornamental bush, and might be associated with the dwarf furze and Nitrària Schóberi. It is easily propagated by cuttings of the young wood, planted in sand under a hand-glass. Price, in London, 1*s.* 6*d.*

App. I. *Other ligneous or suffruticose Cruciàceæ.*

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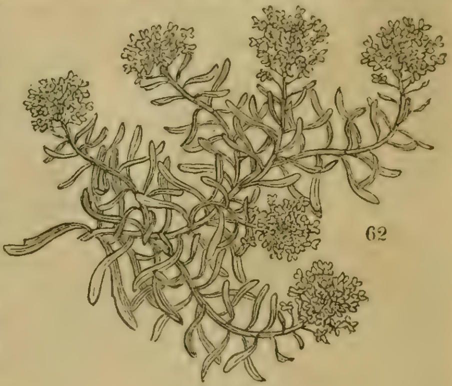
Those who wish to include in their collections all the hardy plants of Cruciàceæ, cultivated in the gardens, which are botanically considered as ligneous, will find them enumerated in our *Hortus Britannicus.* The principal are, Cheiránthus *Cheìri,* and several varieties, more especially C. *C.* fruticulòsus, the wild wallflower; Vesicària utriculàta; *A*lýssum argénteum, *A.* saxátile (*fig.* 61.), and *A.* gemonénse; *I*bèris sempervìrens (*fig.* 62.), *I.* saxátilis, and *I.* corifòlia; *L*epídium subulàtum and *L.* suffruticòsum. *S*isýmbrium *M*illefòlium, from the Canaries, might also, it is possible, stand out; and it is very interesting, from its finely cut leaves, a character which is comparatively rare in cruciaceous plants. All the ligneous plants of this order are particularly adapted for rockwork; and, like all low-growing woody plants, even when grown in a common border, each ought to be elevated on a small mound or hillock of stones, of such a size as that, the plant after three or four years' growth, might hang down over it on every side, so as completely to conceal the stones.



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CHAP. X.

OF THE HALF-HARDY LIGNEOUS PLANTS OF THE ORDER CAPPARIDA'CEÆ.

DISTINCTIVE Characteristics. Thalamiflorous. (*H. B.*) Sepals 4. Petals 4, cruciformly disposed. Stamens often numerous; if few never tetradynamous, or scarcely ever. Ovarium stalked upon the receptacle. Fruit either pod-shaped or baccate, 1-celled, very rarely 1-seeded, most frequently with many seeds attached to two narrow simple parietal placentæ. Seeds kidney-shaped. Properties stimulant or tonic. (*Lindley's Introd. to N. S.,* and *Key.*)

The only genus in this order, which contains any half-hardy ligneous plant, is Cápparis.

GENUS I.

CA'PPARIS *L.* THE CAPER BUSH. *Lin. Syst.* Polyándria Monogýnia.

Derivation. From *kabir,* the Arabic name of the common caper.
Identification. Lin. Gen., 613.; Dec. Prod., 1. p. 245.; Don's Mill., 1. p. 278.

Gen. Char. *Calyx* 4-parted. *Torus* small. *Fruit* a silique, somewhat baccate, upon a slender stalk.

✱ 1. *C.* SPINO`SA *L.* The spined, *or common*, Caper Bush.

Identification. Lin. Sp., 720.; Dec. Prod., 1. p. 245.; Don's Mill., 1. p. 278.
Synonymes. The caper having been in extensive cultivation, and used for so long a period, has names in most of the languages of the civilised world, and these, though too numerous to be given here, will be found in Newman's *Dictionary*, or in the index of synonymes to the *Encyclopædia of Plants*. In French, the name of the caper is Caprier or Tapenier; in Italian, Capriolo or Cappero; and in German, Kaperustrauch.
Engravings. Blackw. Herb., t. 417.; Smith's Spic., 18. t. 12.; Fl. Gr., 486.; Bot. Mag., t. 291.; and our *fig.* 63.

Spec. Char., &c. Stipules spinose, hooked. Leaves ovate, roundish, deciduous. Pedicels solitary, 1-flowered. (*Don's Mill.*, i. 278.)

Variety. There is said to be a variety without spines, and with ovate leaves, the latter more or less hoary.

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Description, &c. The common caper plant is a well-known shrub, trailing and rambling like the bramble, found wild on the rocks in the south of Italy, in the Grecian Islands, and in various parts of Asia Minor. The stems are woody, and covered with a white bark, round, smooth, and branching. The leaves are oval or roundish, succulent, glaucous green, and deciduous. The stipules, which are two, at the base of the footstalks, are transformed into spines. The flowers are white, numerous, axillary, solitary, large, handsome, and without smell. The petals are much larger than the sepals; spreading, obovate, waved, tender and flaccid; white, faintly tinged with red or lilac. The stamens are about 60, of the same length as the petals, sometimes a little longer. The fruit is an oblong-oval coriaceous capsule. The root is long and woody, and covered with a thick bark.

Geography and History. Found wild in the southern countries of Europe, in the Levant, in Sicily, and in the south of Spain, on rocks, walls, and dry places. It is mentioned by Theophrastus as a wild plant, and incapable of being cultivated; but, in the south of France, it has been grown for the flower buds from time immemorial. It was cultivated by Gerard in 1596, who tells us that he put the seeds into the brick walls of his garden, "which did spring and grow green;" and Bradley states that, he sowed some seeds which he procured from Italy on the garden walls of Camden House, near Kensington, about the year 1716. Mr. Miller mentions an old plant growing there (probably the same that Bradley sowed), which resisted the cold many years, and annually produced many flowers, but the young shoots were frequently killed to the stump during the winter. This plant died about the year 1816. In general, the caper bush is grown in green-houses or stoves, but even in them it is not very frequent, and is seldom seen in flower. The largest plant that we know of in England is in the bed of a conservatory at Troughton Hall, near Manchester; its shoots cover a space between 20ft. and 30ft. long, and 4ft. or 5ft. wide, and it is profusely covered with blossoms every year.

Properties and Uses. The flower buds are well known throughout Europe and America as a pickle, and in the south of Italy the fruit is prepared in the same way as the buds. Their properties are, acridity, bitterness, and aroma. The buds are gathered daily, from the middle of May, when they begin to appear, till the end of autumn. They are taken when about half the size which they would attain when just about to expand. They are then thrown into a cask, among salt and vinegar, in which they remain till the end of the season, when they are taken out and sorted, and put into other casks with fresh vinegar, when they are fit for sale. Covered with vinegar, caper buds will keep many years. It is said that in order to increase the green colour, it is customary to put filings of copper in the first pickle. Bosc states that, in order to effect the same object, they use sieves formed of copper wires, when separating the large buds from the small ones, previously to placing them in fresh vinegar; the consequence is, he says, that capers are always more or less poisonous. (*N. Cours d'Agr.*, tom. iii. 413.) The substitutes for capers are, the green fruits of the nasturtium (Tropæ`olum màjus), and the unripe pods of the *E*uphórb*ia L*áthyris.

Soil and Situation. A very dry soil, somewhat calcareous, and a situation fully exposed to the mid-day sun, are essential. It should either be planted against a wall, or on the south side of dry elevated rockwork; and, in either case, it will require some protection during winter. In the *Nouveau Du Hamel* it is stated that it will not grow at all if placed in the shade. In the neighbourhood of Paris, it is grown in light soil, on a stratum of broken limestone, and protected during winter with straw or leaves. There is a plant against the wall in the London Horticultural Society's garden, which in 1835 had stood there 8 years with very little protection. There is a large and vigorous plant of it in the botanic garden at Cambridge, planted in the open air, but in front of a stove, and near the furnace, which produces strong shoots, and flowers abundantly every year.

Propagation and Culture. In France, where ripe seeds can be procured, it is raised from them; but they require to be sown immediately after they are gathered. About Marseilles, where it is cultivated extensively in the fields, it is multiplied chiefly by cuttings; but partly also by division of the root. (See Statistics.)

Statistics. The caper is cultivated for its fruits and buds on both shores of the Mediterranean; and in Greece, and even in Egypt, the buds are gathered for sale from wild plants. In France, the only caper plantations are in the neighbourhood of Marseilles and Toulon, and these have existed from the time that Marseilles was founded by a colony from Greece. The plants are there grown in open fields, planted at 10 ft. apart in quincunx. They attain the height of 4 ft. or 5 ft., and the bush covers a space of about the same diameter. Every autumn all the shoots are cut off within 5 in. or 6 in. of the root; and, over the stools so formed, a little heap of earth is thrown up, of from 6 in. to 8 in. in thickness. In spring this earth is spread out, and the ground is hoed or ploughed; and this is the whole culture which the plant receives. As soon as the plants begin to flower, which, about Marseilles, is early in May, women and children are employed to gather the buds, and they continue doing so throughout the season, till the commencement of frost in November. Every day's gathering is thrown into a cask in the evening, and every addition of capers is followed by an addition of vinegar, with a little salt in it, so as to keep the buds always covered with liquor to the depth of 2 in. When a new plantation is to be made, the shoots cut off in the autumn are formed into cuttings of about a foot in length, which are immediately planted in a nursery, and covered with straw, to protect them from frost. They remain there two years, and afterwards are transplanted to their final situation, where two, and sometimes three, plants are always placed together to provide for deficiencies from deaths. Sometimes new plantations are formed by dividing the roots of old plants, and this operation is always performed in spring. The culture of the caper has been tried, with a view to commercial objects, in the neighbourhood of Paris, but without much success; not so much on account of the severity of the frosts there, as owing to the humidity both of the situation and of the climate. In Spain, on the shores of the Mediterranean, the caper is planted on the face of terrace walls on the sides of hills. Bosc observes that the gathering of the caper buds by women and children is a "cruel torment" to them, on account of the numerous spines which cover the branches; and he adds that he has heard of a variety, which, however, he says, is not known in France, which is without spines, and which it would be very desirable to substitute for the other in general cultivation. In the south of France, every one who has a garden grows his own capers; and cottagers sometimes plant them in their garden walls, in order to sell the produce. The caper is cultivated extensively in the neighbourhood of Tunis, and exported both to America and Europe. In commerce, the buds are of three different qualities, the nonpareil, the capucine, and the capotte. M'Culloch says, the best capers imported into Britain are from Toulon; some small salt capers come from Majorca, and a few flat ones from about Lyons. In the year 1832, 6213 lbs. were entered for home consumption. (*Com. Dict.*)

The caper plant has, we believe, been introduced into Australia, and it is highly probable that it would thrive particularly well in that dry and warm climate; as it would, doubtless, in the Himalaya, and in other parts of India. For these reasons, we have departed from the rule we laid down, p. 230., which would have obliged us to print our account of this species, as being only half-hardy, in small type.

✱ 2. *C.* FONTANÈS*II* Dec. Desfontaines's Caper Bush.

Identification. Dec. Prod., 1. p. 245.; Don's Mill., 1. p. 279.
Synonymes. *C.* ovàta *Desf. Fl. Atl.*, 1. p. 404.; Caprier oval, *Fr.*
Engraving. Bocc. Sic., t. 42.

Spec. Char., &c. Stipules spinose, hooked. Leaves ovate, cordate at the base, acutish at the tip. (*Don's Mill.*, i. p. 279.) Flowers dull white. Fruit club-shaped. A deciduous bush, closely resembling *C.* spinòsa, of which it is, in all probability, only a variety. It was found in Mauritania, near Oran, in fissures of rocks, by M. Desfontaines, and it is also to be met with in Sicily, Italy, Spain, and the states of Barbary. In the *Nouveau Du Hamel* it is stated that it differs from *C.* spinòsa in nothing but the forms of the leaves, which are oval-acuminate, while those of the other are round. It appears to have been introduced into England in 1800, but we have not seen it. As it is, doubtless, equally hardy with the other, it well merits a place against a conservative wall.

From the habits common to the genus *C*ápparis, and more especially from the principal part of the plant which contains the vital power being under ground, it is not improbable that all the greenhouse species might stand against a conservative wall with very little protection. One only is introduced, namely *C.* ægýpta *Lam.*, from Egypt; but there are described by De Candolle, and by G. Don: *C.* nepalénsis *Dec.*, from Nepal; *C.* nummulària *Dec.*, *C.* quiniflòra *Dec.*, and *C.* umbellàta *R. Br.*, from New Holland; *C.* canéscens *Banks*, from New South Wales; *C.* heteracántha *Dec.*, and *C.* leucophýlla *Dec.*, from between Bagdad and Aleppo; *C.* volkamèr*iæ* Dec., *C.* citrifòlia *Lam.*, *C.* cluyt*iæfòlia* Burch., *C.* oleöìdes *Burch.*, *C.* coriàcea *Burch.*, *C.* albitrúnca *Burch.*, which is a tree 16 ft. high, *C.* punctàta *Burch.*, and *C.* racemòsa *Dec.*, all from the Cape of Good Hope; and *C.* saligna *Vahl*, from Santa Cruz.

CHAP. XI.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER *C*ISTÀCEÆ.

DISTINCTIVE Characteristics. Thalamiflorous. Sepals 5, incompletely whorled, two of them being exterior. Petals 5, crumpled in æstivation, very fugitive. Stamens numerous. Fruit capsular, usually 3-valved or 5-valved, occasionally 10-valved; either 1-celled, with parietal placentæ in the middle of the valves; or imperfectly 5-celled or 10-celled, with dissepiments proceeding from the middle of the valves, and touching each other in the centre. Embryo inverted. Properties balsamic. (*Lindl. Introd. to N. S.*, and *Key.*)

Description, History, &c. The species are all low ornamental shrubs, subevergreen or evergreen, most of them trailers, and only a few of them attaining the height of 5 ft. or 6 ft. They are natives of the south of Europe and north of Africa, but are scarcely known in America or Asia. One or more of the species of the *C*istàceæ have been known from the days of Hippocrates. Linnæus included the whole of what were known in his time under two genera, *C*ístus and Hudsòn*ia*; but a new arrangement was published by Professor De Candolle (*Prod.* i.), in 1824, which he had adopted from Dunal, and this was followed by Sweet, in 1830, in his *Cistineæ*; and by G. Don, in 1831, in his edition of Miller's *Dictionary*. This arrangement we shall adopt in the present chapter, though we are convinced that most of the species described are mere varieties, some of them of the most fugitive kind. Our own opinion is, that all the different alleged species of the genera *C*ístus, Heliánthemum, and Hudsònia are, properly, only races or varieties of three or four aboriginal forms. The *C*istàceæ have no medical properties; but the resinous balsamic substance called ladanum or labdanum is produced from *C.* créticus, *C.* ladaníferus, *C.* laurifòlius, and one or two other species. (See *Mag. Nat. Hist.*, vol. ii. p. 408.) Some of the species which inhabit Turkey and Greece are liable, in those countries, to be injured by the growth of the hypocistis on their roots. The hypocistis is the Cýtinus Hypocístis *L.*, Gynándria Octándria *L.*, *A*ristolochièæ *Juss.*, and Cytíneæ *R. Br.* It is nearly allied to *N*epénthes and *A*ristolòchia; and is a succulent parasite of a rich red colour, bearing a distant resemblance in size and form to the *O*robánche. It has been known from the days of Theophrastus, but, as far as we know, has never been seen in a living state in Britain. It is figured in *Du Ham.*, i. t. 68.; and in Gerard's *Herbal*, p. 1275. The use of the *C*istàceæ in gardens is for ornamenting rockwork, or for keeping in pits during the winter, and planting out in flower-borders in spring; as, from the tenderness of the finer species, they are unfit for a permanent place in a shrubbery or arboretum. Most of the larger-growing kinds require some protection during winter; but they will all grow freely in any soil that is dry; and they are readily propagated by seeds, which, in fine seasons, they produce in abundance, or by cuttings; the plants, in both cases, flowering the second year. In the London nurseries the plants are generally kept in pots; and the price of the commoner sorts is from 1*s.* 6*d.* to 2*s.* 6*d.* a plant; at Bollwyller, where they are mostly green-house plants, it is 1 franc 50 cents; and in New York, ?.

The hardy ligneous species are included in three genera; which are thus contradistinguished by De Candolle and G. Don: —

*C*I'STUS. Calyx of 5 sepals, 2 outer ones unequal or absent. Capsule covered by the calyx, 10—5-celled, from having a dissepiment in the middle of each valve.

HELIA'NTHEMUM. Calyx of 3 equal sepals, or of 5 unequal sepals. Capsule triquetrous, 1-celled, 3-valved, with a narrow dissepiment, or a placentarious nerve in the middle of each valve.

HUDSO'N*IA*. Calyx of 5 equal sepals. Capsule 1-celled, 3-valved, 1—3-seeded.

GENUS I.

*C*I'STUS *L.* THE CISTUS, *or* *ROCK ROSE.* *Lin.* *Syst.* Polyándria Monogýnia.

Derivation. From the Greek word *kistê*, a box or capsule, or the Anglo-Saxon, *cist*, a hollow vessel; on account of the shape of its capsules. In Martyn's *Miller*, the name is said to be derived from that of the youth Cistus, whose story is to be found in Cassianus Bassus. Others derive it from *kis*, a worm or weevil.
Identification. Tourn., Lin., Dec., G. Don.
Synonymes. Holly Rose *Gerard*; Gum Cistus; Ciste, *Fr.*; Cisten Rose, *Ger.*

Gen. Char. *Calyx* of 5 sepals; sepals disposed in a double series; 2 outer ones unequal, sometimes wanting. *Petals* 5, equal, somewhat cuneated, caducous. *Stamens* numerous, usually exserted from the glandular disk. *Style* filiform. *Stigma* capitate. *Capsule* covered by the calyx, 5- or 10-valved, with a seminiferous partition in the middle of each valve, therefore 5- or 10-celled. *Seeds* ovate, angular. *Embryo* filiform, spiral.— Elegant, erect shrubs or subshrubs, with opposite, exstipulate, entire or somewhat toothed leaves, and axillary, 1- or many-flowered peduncles. Flowers large, beautiful, resembling a single rose, red or white. (*Don's Mill.*, i. p. 298.)

§ i. *Erythrocistus*, Dec. i. p. 264.

Derivation. From *erythros*, red, and *cistus*; because the flowers of all the species in this section are red or purple.

Sect. Char. Outer sepals narrowest, and usually smallest; inner ones concave at the base, with scarious margins. Petals rose-coloured, red, or purple, with a yellow spot at the base of each. Capsule 5-celled, from having 5 seminiferous partitions, one in the middle of each valve. (*Dec. Prod.*, i. p. 264.; *Don's Mill.*, i. p. 298.) Low shrubs, evergreen, sub-evergreen, or deciduous, generally with large showy flowers.

A. *Peduncles* 1-*flowered, axillary or terminal, solitary or umbellate. Style cylindrical, generally longer than the Stamens. Stigma capitate, 5-furrowed.* (Ibid.)

1. Ci′stus purpu`reus *Lam.* The purple-*flowered* Cistus, *or Rock Rose.*

Identification. Lam. Dict., 2. p. 14.; Ker, in Bot. Reg., t. 408.; Dec. Prod., 1. p. 264.; Swt. Cist., t. 17.; Don's Mill., 1. p. 298.
Synonymes. C. créticus *Hort. Kew.*; the purple Gum Cistus, the purple Shrubby Cistus; Ciste pourpre, *Fr.*; purpurrothe Cisten Rose, *Ger.*
Engravings. Bot. Reg., t. 408.; Swt. Cist., t. 17.; and our *fig.* 64.

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Spec. Char., &c. Leaves oblong-lanceolate, obtuse or acute, and more or less rugose; reticulately veined, with undulated margins. Petioles short, hairy, connected at the base, and sheathing the stem. Flowers terminal, from 1 to 6, on short peduncles. Bracteas sessile, leaf-like, pubescent, broad and concave at the base, where they are connected, and terminating in acute points. Pedicels short, and with the calyx hairy; calyx of 5 sepals. Petals 5 or 6, obovate or wedge-shaped; very much imbricate, more or less crumpled. Stamens numerous, filaments smooth. Style very short; and stigma large, capitate, 5-lobed, papillose. (*Swt. Cist.*, 17.) A shrub about 3 ft. or 4 ft. high, and much branched; the branches are erect, and clothed with a brownish pubescence. The flowers are very large and handsome, of a bright reddish purple, with a yellow spot at the base, above which is a large dark velvet mark, surrounded with red, and slightly branched. The petals are imbricate, and much crumpled. It is a native of the Levant; but when it was introduced into England is uncertain: it seems to have been cultivated by Gerard under the name of Cístus más angustifòlius, "with flowers of a purple colour, in shape like unto a single-flower briar rose, having leaves very like those of sage, wrinkled somewhat like unto a cloth new dried before it be smooth." It is rather tender; but, if planted near or against a wall, requires no other protection. It flowers abundantly in June and July, and is very ornamental. It grows very fast, and is easily propagated by cuttings.

2. Ci′stus heterophy′llus *Desf.* The various-leaved Cistus, *or Rock Rose.*

Identification. Desf. Atl., 1. p. 411. t. 104.; Dec. Prod., 1. p. 264.; Swt. Cist., t. 6.; Don's Mill., 1. p. 298.
Synonymes. The Gum Cistus of Algiers; Ciste hétérophylle, *Fr.*
Engravings. Desf. Atl., 1. t. 104.; Swt. Cist., t. 6.; and our *fig.* 65.

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Spec. Char., &c. Leaves ovate-lanceolate; petioles very short, hairy, and sheathing at the base; margins of the leaves revolute, green on both sides. Peduncles hairy, one-flowered, with two leafy bracteas about the middle of them. Flowers large, terminal. Calyx of 5 hairy sepals. Petals 5 or 6, imbricate, obovate, with roundish points. A stiff upright woody shrub, with short rigid branches, thickly clothed, as well as the other parts of the plant, with a hairy pubescence. The flowers are of a bluish rose colour, with a bright yellow spot at the base; and the petals are imbricate, and much crumpled. The leaves are very small, and the whole plant has the appearance of a miniature tree. It is a native of uncultivated hills in Algiers; but by whom it was discovered, and when brought to the country, are unknown. It is rather tender, and requires protection during winter. It does best trained against a wall, where it has a very brilliant appearance in June and July, when it is covered with flowers. The seeds sometimes ripen in this country; and, when they do, they afford the best means of propagating the plant, as it does not strike freely from cuttings. It requires a light rich soil, and does best in a mixture of sandy loam and peat. (*G. Don. Sweet.*)

♄ 3. *C.* PARVIFLO`RUS *Lam.* The small-flowered Cistus, *or Rock Rose.*

Identification. Lam. Dict., 2. p. 14.; Dec. Prod., 1. p. 264.; Swt. Cist., t. 14.; and Don's Mill., 1.p. 298.
Engravings. Swt. Cist., t. 14. Smith's Fl. Græc., t. 495.

Spec. Char., &c. Leaves ovate, acute, somewhat tomentose, drawn out into the footstalks at the base, and somewhat connate. Peduncles 1-flowered, 3 or 4 together, almost terminal. (*Don's Mill.*, i. p. 298.) A shrub about 3 ft. in height; a native of Crete. Mr. Sweet thinks it was probably introduced by Dr. Sibthorp, having been found in our collections ever since the doctor's return from that country. The petals are small, purplish, or pale rose-coloured, and distinct or separated from each other. It flowers in June and July, and sometimes ripens seeds, from which, or from cuttings, it is readily propagated. Plants were in the Chelsea Botanic Garden, and in the Fulham Nursery, in 1826. (*Sweet.*)

♄ 4. *C.* COMPLICA`TUS *Lam.* The complicated Cistus, *or Rock Rose.*

Identification. Lam. Dict., 2. p. 14.; Don's Mill., 1. p. 298.

Spec. Char., &c. Leaves roundish-ovate, bluntish, approximate, clothed with white tomentum; under surface reticulated; footstalks dilated at the base, with pilose margins, channeled above, and sheathing at the base. Peduncles short, 1-flowered, three or four together, somewhat terminal. (*Don's Mill.*, i. p. 298.) A shrub, from the Levant, and from the mountains of Valencia, in Spain, growing to the height of 3 ft., and producing small rose-coloured or purplish flowers in June and July. Introduced into England in 1818.

♄ 5. *C.* VILLO`SUS *Lam.* The villous Cistus, *or hairy Rock Rose.*

Identification. Lam. Dict., 2. p. 12.; Lin. Sp., 736.; Willd. Sp., p. 1181.; Hort. Kew., 2d. edit., 3. p. 303.; Dec. Prod., 1 p. 264.; Don's Mill., 1. p. 298.
Synonymes. C. salvifòlius *Hort.*; C. undulàtus *Mœnch*; Cístus más màjor fòlio rotundiòre *Duh.*; C. créticus *Hort. Lam.*; the shrubby Cistus *Mart. Mill.*; Ciste velu, *Fr.*; Raube Cisten Rose, *Ger.*
Engravings. Duh. Ar., 1. t. 64.; Swt., t. 35.; Willd., p. 2. 1181.

Spec. Char., &c. Leaves roundish-ovate, wrinkled, tomentose, and hairy, stalked; footstalks furrowed, connate at the base. Peduncles 1-flowered, 1 or 3 together. Sepals villous. (*Don's Mill.*, i. p. 298.) A shrub 3 ft. high. A native of the south of Europe and the north of Africa, which has been in the English and French gardens for the last two hundred years. It is, as Mr. Sweet observes, one of the commonest species in all the nurseries about London, where it is sold under several names, and generally for *C.* salviæfòlius; which, however, is a white-flowered species, though it resembles the present plant in habit. This shrub forms a "snug compact bush," and continues in flower for a long time. The flowers vary in colour from a pale lilac to a dark purple, and even very much on the same plant at different times. In severe winters it requires a little protection; and it will generally be found safe to keep a reserve of young plants in pots, in a pit or cold-frame.

Variety.

♄ C. *v.* 2 *rotundifòlius. The round-leaved villous Cistus,* or Rock Rose. *C.* rotundifòlius *Sweet*; *C.* villòsus β viréscens *Dec.* (*Swt. Cist.* t. 75.)—Leaves more obtuse than in the species.

♄ 6. *C.* CRE´TICUS *L.* The Cretan Cistus, *or Rock Rose.*

Identification. Lin. Sp., 1. p. 738.; Jacq. Icon. rar., 1. t. 95.; Smith's Fl. Græc., 495.; Buxb. Cent. 3. p. 34. t. 64. f. 1.; Dec. Prod., 1. p. 264.; Swt. Cist., t. 112.
Synonymes. Lèdon *Diosc.*; Ciste de Crète, *Fr.*; Cretische Cisten Rose, *Ger.*
Engravings. Jacq. Icon. rar., 1. t. 95.; Fl. Gr., t. 495.; Buxb. Cent., 3. p. 34. t. 64. f. 1.; Swt. Cist., t. 112.; and our *fig.* 66.

Varieties. C. c. 2 *crispàtus* Dec. has the leaves waved or curled; and C. c. 3 *taùricus* Dec. has the leaves flat, and very villous, on the under surface.

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Spec. Char., &c. Leaves spathulate-ovate, tomentosely hairy, wrinkled, tapered into the short footstalk, waved on the margin. Peduncles 1-flowered. Sepals villous. (*Don's Mill.*, i. p. 298.) This species, Sweet observes, resembles *C.* villòsus and *C.* undulàtus in appearance, and is often confused with those species in collections. In the nurseries, *C.* purpùreus is very often sold for it; but the fine yellow spots at the base of its petals readily distinguish it from that species. It is a shrub, a native of Crete, Syria, and Greece, growing to the height of 2 ft., and generally requiring protection in the gardens about London; which as it does not often receive, it is, in consequence, scarce. The gum ladanum is the produce of this species. Dioscorides tells us that in his time the gum that exuded from the glands of the leaves was obtained by driving goats in among the shrubs, or by these animals naturally browsing upon them, when the substance adhered to their hair and beards, whence it was afterwards combed. This resin being at present collected to supply an extended commerce, a peculiar instrument is employed for the purpose, which is figured and described by Tournefort, and which is a kind of rake with a double row of long leathern straps. (See *Mag. Nat. Hist.*, vol. iii. fig. 21.) The following is the description of the mode of gathering the gum given by Sieber in his *Voyage to Crete*: — "It was in the heat of the day, and not a breath of wind stirring; circumstances necessary to the gathering of ladanum. Seven or eight country fellows, in their shirts and drawers, were brushing the plants with their whips; the straps whereof, by rubbing against the leaves of the shrub, licked up a sort of odoriferous glue, sticking on the leaves; this is a part of the nutritious juice of the plant, which sweats through the texture of the leaves like a fatty dew, in shining drops, as clear as turpentine. When the whips are sufficiently laden with this grease, they take a knife and scrape it clean off the straps, and make it up into a mass or cakes of different sizes: this is what comes to us under the name of *ladanum*, or *labdanum*. A man who is diligent will gather three pounds in a day, or more, which they sell for a crown on the spot. This sort of work is rather unpleasant than laborious, because it must be done in the sultry time of the day, and in the deadest calm; and yet the purest *ladanum* cannot be obtained free from filth, because the winds of the preceding day have blown dust upon the shrubs." (Sieber's *Crete*, as quoted in Murray's *Encyc. of Geog.*, p. 835.) Formerly ladanum was a good deal used in pharmacy, but at present it is comparatively neglected. In the west of Europe, a considerable quantity of it, however, is annually collected in Crete, and sent to Constantinople, where it is chewed by the Turks, and used in various preparations of laudanum, and for fumigating churches and mosques.

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♣ 7. *C.* INCA`NUS *L.* The hoary Cistus, *or Rock Rose.*

Identification. Lin. Sp., 737.; Smith's Fl. Græc., 494.; Don's Mill., 1. p. 298.; Cist., t. 44.

Synonymes. *C.* âlbidus *Hort.*; *C.* cymòsus *Dec.*; Ciste cotonneux, *Fr.*; bestaubte Cisten Rose, *Ger.*

Engravings. Bot. Mag., t. 43.; Swt. Cist., t. 44.; and our *fig.* 67.

Spec. Char., &c. Leaves spathulate, tomentose, wrinkled, somewhat 3-nerved, sessile, somewhat connate at the base, upper ones narrower. Peduncles 1—3-flowered. (*Don's Mill.*, i. p. 298.) A shrub, a native of Spain and France, about Narbonne, and which has been in our gardens since the time of Gerard. It grows to the height of 3 ft., forming a hoary bush, with reddish purple flowers, having the petals emarginate, and flowering in July and August. It will endure our mildest winters in the open air; but in severe frosty weather it will require to be protected by glass, or by some slight covering. Plants of this species were in the Hammersmith Nursery in 1826.

Variety.

ᵫ C. *i.* 2 *canéscens. The canescent*-leaved *Cistus*, or hoary Rock Rose. *C.* canéscens *Swt.* (*Don's Mill.*, i. p. 298.); *Cístus más Clus.*; *C.* incànus var. *β Dec.* (*Swt. Cist.* t. 45.)—Leaves oblong-linear, bluntish, tomentose, hoary, waved, rather 3-nerved, sessile, somewhat connate at the base. Peduncles terminal, 1-flowered, or somewhat cymose. Sepals ovate, acute, nerved, clothed with starry pubescence. Petals obovate, distinct. (*Don's Mill.*, i. p. 298.) Native of the south of Europe. A shrub growing to the height of 2 ft. in British gardens, and greatly resembling the preceding species; the general colour and surface of the plant being the same, and also the colour of its flowers. Mr. Sweet says that he has no doubt of its being perfectly distinct; which it may be, and yet be only a variety. It is tender, and requires protection like the species.

ᵫ 8. *C.* UNDULA`TUS *Dec.* The waved-*leaved* Cistus, *or Rock Rose.*

Identification. Dec. Prod., 1. p. 264.; Don's Mill., 1. p. 299.
Synonymes. *C.* créticus *Swt.*, t. 63., afterwards corrected to *C.* undulatus; perhaps *C.* críspus var. *Don.*
Engraving. Swt. Cist., t. 63., under the name of *C.* créticus.

Spec. Char., &c. Leaves sessile, linear-oblong, acute, with waved margins, 3-nerved at the base. Peduncles solitary, each furnished with a bractea. Sepals taper-pointed, villous. (*Don's Mill.*, i. p. 299.) A shrub 2 ft. high, cultivated in collections, but of which the native country is unknown. It has purple flowers, which appear in June and July; and is probably a hybrid. It is rather tender, and not very frequently to be met with. It was in the Hammersmith Nursery, when Mr. Sweet's drawing was made, in 1827.

ᵫ 9. *C.* CRI´SPUS *L.* The curled-*leaved* Cistus, *or Rock Rose.*

Identification. Lin. Sp., 738.; Swt. Cist., 22.; Don's Mill., 1. p. 299.
Synonymes. Ciste crépu, *Fr.*; krause Cisten Rose, *Ger.*
Engravings. Cav. Icon., 2. t. 174.; Swt. Cist., 22.

Spec. Char., &c. Leaves sessile, linear-lanceolate, undulately curled, 3-nerved, wrinkled, pubescent. Flowers almost sessile, 3 or 4 together, somewhat umbellate. (*Don's Mill.*, i. p. 299.) Native of the south of France, Spain, and Portugal, and introduced into England in 1656. It is a shrub, growing to the height of 2 ft., and producing showy purple, or reddish purple, flowers in July and August. The leaves are ribbed, or nerved, and covered with hairs, much undulated at the edges, and of a whitish green. They vary considerably in size, as well as in form. It is a very distinct sort, and forms a very pretty bush, which will stand the severity of our winters without protection. Cuttings of the young wood, Mr. Sweet observes, planted under hand-glasses in autumn will strike root readily; but they will not strike so freely in summer. Plants of this kind were in the Fulham Nursery in 1826.

ᵫ 10. *C.* A´LBIDUS *L.* The white-*leaved* Cistus, *or Rock Rose.*

Identification. Lin. Sp., 737. Don's Mill., 1. p. 299.
Synonymes. Ciste blanchâtre, *Fr.*; weissliche Cisten Rose, *Ger.*
Engraving. Swt. Cist., t. 31.

Spec. Char., &c. Leaves sessile, oblong-elliptical, hoary-tomentose, somewhat 3-nerved. Flowers 3 or 8, terminal, somewhat umbellate. Outer sepals largest. (*Don's Mill.*, i. p. 299.) Native of France, about Narbonne, Spain, and Portugal. In British gardens, a shrub growing to the height of 2 ft., erect, much branched, and thickly crowded with white hoary leaves. The flowers, which are of a pale purple, a bright lilac, or a pale rose colour, terminate the branch in a sort of umbellate corymb, and appear in

July and August. It is one of the most desirable species of the genus, being quite hardy, having flowers of the largest size, and thriving in almost any soil or situation not too moist. Cuttings put in in autumn are soon rooted, and the plant ripens seeds plentifully in ordinary seasons.

♄ 11. *C.* CANDIDI´SSIMUS *Dun.* The whitest-*leaved* Cistus, *or Rock Rose.*

Identification. Dun. ined. Dec. Prod., 1. p. 264.; Swt. Cist., 3.; Don's Mill., 1. p. 299.
Engravings. Swt. Cist., t. 3.

Spec. Char., &c. Leaves ovate-elliptical, acute, densely clothed with hoary tomentum, 3-nerved; footstalks short and sheathing at the base, with pilose margins. Peduncles solitary, 1-flowered, shorter than the leaves. Outer sepals one half shorter than the rest. (*Don's Mill.*, 1. p. 299.) Native of the Grand Canary Island, in elevated pine forests. This is a noble species, growing to the height of 4 ft. and upwards, with fine poplar-like leaves, and large pale rose-coloured flowers, with distinct petals, which appear in July and August. It was introduced into the Botanic Garden at Chelsea in 1815, where it flowered soon afterwards, and plants existed there in 1825. It forms a shrub, not sufficiently hardy to stand through the winter, about London, in the open air, as a bush; but, with dry litter laid about its roots, and a slight covering of mats in the most severe weather, it may be preserved.

♄ 12. *C.* VAGINA`TUS *Ait.* The sheathed-*petioled* Cistus, *or Rock Rose.*

Identification. Hort. Kew., 3. p. 304.; Jacq. Hort. Sch., 3. p. 17.; Swt. Cist., t. 9.; Don's Mill., 1. p. 299.
Synonymes. Cístus symphytifòlius *Lam.*; Ciste à Feuilles de Consoude, *Fr.*; scheidenartige Cisten Rose, *Ger.*
Engravings. Jacq. Hort. Sch., 3. p. 17. t. 282.; Bot. Reg., t. 225.; Swt. Cist., t. 9.

Spec. Char., &c. Leaves lanceolate, acute, 3-nerved, hairy, under surface reticulated; footstalks furrowed, dilated, and sheathing at the base, with pilose margins. Peduncles 3-flowered, axillary or terminal, long, bracteate at the base. (*Don's Mill.*, i. p. 299.) Native of the Island of Teneriffe. Introduced in 1779. A splendid-flowered species, easily distinguished by its panicled flowers, and large, imbricate, obcordate, crumpled petals. It grows to the height of 4 ft.; and, being rather tender, it is generally kept in green-houses or pits. Its flowers are light rose colour, darker without and pale within: their general appearance is that of an apple blossom on a large scale; and they continue appearing from April to June. Plants were in the Kensington Nursery in 1826.

♄ 13. *C.* SERI´CEUS *Vahl.* The silky-*leaved* Cistus, *or Rock Rose.*

Identification. Vahl. Symb., 1. p. 37.; Don's Mill., 1. p. 299.
Engravings. Barrel. Icon., 1315.

Spec. Char., &c. Leaves ovate, tomentose, 3-nerved; lower ones on footstalks, upper ones sessile. Peduncles hairy. (*Don's Mill.*, i. p. 299.) Native of Spain, producing its purple flowers in June and July. It was in cultivation in 1826; and is said to grow to the height of 3 ft.

♄ 14. *C.* HY´BRIDUS *Vahl.* The hybrid Cistus, *or Rock Rose.*

Identification. Vahl. Symb., 1. p. 37.; Don's Mill., 1. p. 299.

Spec. Char., &c. Leaves ovate, hoary, on footstalks. Branches beset with yellow scales. Peduncles elongated, subracemose, hairy. Outer sepals caducous. (*Don's Mill.*, i. p. 299.) Native of Spain, where it produces its purple flowers in June and July. It is said to grow to the height of 3 ft., but has not yet been brought to Britain.

B. *Peduncles cymose. Style almost wanting. Stigma capitate, shorter than the Stamens.*

♄ 15. *C.* CYMO`SUS *Dun.* The cymose-*flowered* Cistus, *or Rock Rose.*

Identification. Dun. ined. Dec. Prod., i. p. 265.; Don's Mill., 1. p. 299.
Synonymes. Cístus incànus *Sib. Fl. Gr.*, and at one time in the garden of Cels.
Engravings. Fl. Gr., t. 494., as *C.* incànus; Swt. Cist., t. 90.

Spec. Char., &c. Leaves broad-ovate, twisted at the top, acutish; under surface wrinkled and hoary. Footstalks dilated at the base, and somewhat sheathing, furrowed above. Peduncles cymose, 5- or 10-flowered, hoary, axillary, or terminal. (*Don's Mill.*, i. p. 299.) A very handsome, small, bushy shrub, growing in British gardens to the height of 3 ft. It is a native of the Levant, and has been some years in cultivation in British gardens; but how long is uncertain. Sweet says it is often mistaken for *C.* incànus, but that it is nearer related to *C.* villòsus. It is somewhat tender, like all the other species from the Levant; and, in the climate of London, it requires a green-house, a cold-frame, or other protection, during winter.

§ ii. L*edònia* Dec.

Derivation. From *lēdon*, a name given by Dioscorides to the plant that produces the ladanum; but which is supposed by some to be *C*istus *L*èdon (*Dec. Prod.*, 1. p. 265.), and by others to be *C.* créticus. (See p. 320.)

Sect. Char. Sepals 5, 2 outer ones largest, and very much pointed, or wanting. Petals white or whitish, with a yellow or purple mark at the base of each. Stamens numerous, longer than the pistil. Stigma almost sessile, large, capitate. Capsules 5- or 10-celled, from being furnished with 5 or 10 seminiferous partitions, one in the middle of each valve. Sub-evergreen shrubs or subshrubs. Leaves usually covered with clammy gluten. (*Don's Mill.*, i. p. 299.) This section includes some of the finest species of the genus; such as *C.* cýprius, *C.* ladaníferus, *C. l*aurifòlius, &c.: almost all of them are evergreen, and many of them form bushes from 4 ft. to 6 ft. in height, or more, which, when covered with flowers, are among the most ornamental objects that can be introduced into a shrubbery or flower-garden.

A. *Peduncles 1-flowered or many-flowered, cymose. Sepals 5, outer ones usually cordate at the Base, and pointed at the Apex. Capsules 3-celled.*

a. P*eduncles naked at the Base, usually bearing beneath their Middle two opposite small Leaves.*

♣ 16. *C.* SALVIÆFO`LIUS *L.* The Sage-leaved Cistus, *or Rock Rose.*

Identification. Lin. Spec., 38.; Cav. Icon., 2. p. 31.; Jacq. Coll., 2. 120.; Swt. Cist., t. 54.; Smith's Fl. Græca, t. 497.; Don's Mill., 1. p. 299.
Synonymes. *C*ístus fœ'mina *Clus. Hist.*, 1. p. 70.; Ciste à Feuilles de Sauge, *Fr.*; Salbey-blättrige Cisten Rose, *Ger.*
Engravings. Cav. Icon., 2. t. 137.; Jacq. Coll., 2. t. 8.; Swt. Cist., t. 54.; Smith's Fl. Græc., t. 497.

Spec. Char., &c. Leaves stalked, ovate, obtuse, wrinkled; under surface tomentose. Peduncles long, white from tomentum, 1-flowered, articulated above, solitary or ternary. (*Don's Mill.*, i. p. 299.) Native of the south of France, Italy, Greece, Spain, and Portugal. Flowers white. A branchy shrub in British gardens, producing white flowers in July and August, and cultivated since the year 1548. The leaves are of a whitish or pale green colour; and, like every other part of the plant, are covered with numerous short hairs. It is readily distinguished from other species, by its solitary, 1-flowered, jointed peduncles, and its obtuse leaves. It is a very hardy species; and, in sheltered situations, it will endure the winter without any protection. The sage-like leaves and neat flowers of this plant give it a very pleasing appearance.

Varieties.

♣ C. s. 2 *erectiúsculus* Dec. has the stem rather more erect than the species; and C. s. 3 *ochroleùcus* Dec. has the flowers cream-coloured.

♣ 17. *C.* OBTUSIFO`LIUS *Swt.* The obtuse-leaved Cistus, *or Rock Rose.*

Identification. Swt. Cist., t. 42.; Don's Mill., 1. p. 299.
Engraving. Swt. Cist., t. 42.

Spec. Char., &c. Leaves almost sessile, tapering to the base, ovate-oblong, obtuse, wrinkled, clothed with starry pubescence; margins somewhat denticulated. Peduncles terminal, cymose, many-flowered. Outer sepals broadly cordate, acute. Petals obcordate, imbricated. (*Don's Mill.*, i. p. 299.) Native of Crete. Petals white, with a yellow spot at the base of each. This is a dwarf shrub, seldom growing higher than a foot and a half. Being a native of Crete, it requires shelter in severe frost. Mr. Sweet thinks that it has been in our gardens since the time of Dr. Sibthorp, without being noticed as distinct from *C.* salviæfòlius, of which, we have no doubt in our own minds, it is only a variety. Plants were in the Fulham Nursery in 1826.

18. *C.* Cupania'nus Presl. Cupani's Cistus, *or Rock Rose.*

Identification. Presl ex Spreng. Syst. Append., p. 206.; Don's Mill., 1. p. 299.
Engraving. Swt. Cist., t. 70.

Spec. Char., &c. Stem erect. Leaves stalked, cordate-ovate, 3-nerved, reticulately veined; upper surface scabrous, under surface covered with fascicled hairs; margin fringed. Peduncles pilose, 2- or 3-flowered. Sepals villous, acuminated. Petals imbricated. (*Don's Mill.*, i. p. 299.) Native of Sicily, but when introduced into England is uncertain. It grows to the height of 2 ft., and produces white flowers, with a spot of yellow at the base of each petal, in June and July. Sweet says that it is very nearly hardy, requiring protection only during the severest frosts; and, in sheltered situations, requiring no protection at all. It is nearly related, he says, to *C.* salviæfòlius, and to *C.* corbariénsis; but is of stronger growth than either of these. Plants were in the Fulham Nursery in 1827. The heart-shaped leaves of this species render it easily distinguishable from the others that have white flowers.

Variety.

C. *C.* 2 *acutifòlius. The acute-leaved Cupani's Cistus*, or Rock Rose. (*Swt. Cist.*, t. 78.; *Don's Mill.*, i. p. 299.) *C.* acutifòlius *Swt.*; *C.* salviæfòlius β humifùsus *Dec. Prod.*, i. p. 265., *Swt. Cist.*, t. 78.— Leaves cordate-ovate, 3-nerved, reticulately veined, pubescent on both surfaces. Branches twiggy, diffuse, rather prostrate. Peduncles tomentose, generally 3-flowered. Sepals cordate, acute, shining, rather pilose, ciliated. Petals obcordate, imbricated at the base. (*Don's Mill.*, i. p. 299.) Cultivated in Colvill's Nursery, Chelsea, in 1827; and, according to Sweet's figure, so closely resembling the preceding sort, that we have no doubt of their belonging to one species or race.

19. *C.* corbarie'nsis *Pourr.* The Corbières Cistus, *or Rock Rose.*

Identification. Dec. Prod., 1. p. 265.; Swt. Cist., t. 8.; Don's Mill., 1. p. 299.
Synonymes. C salviæfòlius β *Dec. Prod. Fl. Fr.*, 4. p. 813.; *C.* populifòlius mìnor, in some nurseries; *C.* hŷbridus *Pourr.*, not of Vahl.
Engraving. Swt. Cist., t. 8.

Spec. Char., &c. Leaves stalked, somewhat cordate, ovate, acuminated with fringed margins, wrinkled on both surfaces, and very glutinous. Peduncles long, 1—3-flowered. (*Don's Mill.*, i. p. 299.) Found in the south of France, on the mountains of Corbières, and also in Spain; and cultivated in the English gardens in the year 1656. It is a shrub, 2½ ft. high, handsome, and producing its flowers in May and June. According to Sweet, it is one of the hardiest species of the genus, thriving well in the common garden soil, and in any situation where it is not too moist. It continues in bloom for about two months; and every day during that period the plant is covered with a profusion of handsome white flowers, the margins of which are tinged with rose colour. The rose-coloured buds are also very pretty before the flowers expand. Plants were in the Hammersmith Nursery in 1825.

20. *C.* florenti'nus *Lam.* The Florentine Cistus, *or Rock Rose.*

Identification. Lam. Dict., 2. p. 17.; Swt. Cist., t. 59.; Don's Mill, 1. p. 300.
Engraving. Swt. Cist., t. 59.

Spec. Char. Leaves narrow-lanceolate, wrinkled, reticulated on the under surface, almost sessile. Peduncles villous, generally 3-flowered. (*Don's Mill.*, i. p. 300.) A native of Italy, whence it was brought to England in 1825. It is a shrub 3 ft. high, producing its white flowers in June and July. It is a rare and very distinct species, Mr. Sweet observes; and forms a very pretty upright bush, requiring some protection during winter. Plants of it were in the Fulham Nursery in 1826.

21. *C.* monspelie'nsis *L.* The Montpelier Cistus, *or Rock Rose.*

Identification. Lin. Sp., 737.; Lam. Ill., t. 477.; Cav. Icon., 2. t. 137.; Jacq. Coll., 2. t. 8.; Swt. Cist., t. 27.; Smith's Fl. Græc., t. 493.
Synonymes. Ciste de Montpelier, *Fr.*; Französische Cisten Rose, *Ger.*
Engravings. Lam. Ill., t. 477. fig. 4.; Cav. Icon., 2. t. 137.; Jacq. Coll., 2. t. 8.; Swt. Cist., t. 27.; Smith's Fl. Græc., t. 493.

Spec. Char., *&c.* Leaves linear-lanceolate, sessile, 3-nerved, clammy, villous on both surfaces. Peduncles pilose, cymose, somewhat secund. (*Don's Mill.*, i. p. 300.) A native of the south of France, Spain, and Portugal; and, at one time, abundant at Montpelier, as the name implies. A shrub which grows to the height of 4 ft., and has been in cultivation since the time of Gerard, in 1656. The leaves are lanceolate, wrinkled, and reflexed at the points; and the flowers are middle-sized, white, with the petals broadly cuneate. This sort is rather scarce in British collections, though it is of the easiest culture, and is a handsome-growing plant, and an abundant flowerer. It requires a warm border, and some protection in severe weather.

✿ 22. *C.* PLATYSE´PALUS *Swt.* The broad-sepaled Cistus, *or Rock Rose.*

Identification. Swt. Cist., t. 47.; Don's Mill., 1. p.300.
Engraving. Swt. Cist., t. 47.

Spec. Char., *&c.* Leaves oblong-lanceolate, sessile, wrinkled, 3-nerved, villous on both surfaces. Peduncles cymose, and are, as well as the calyxes, villous. Sepals acuminated, outer ones broadly cordate. Petals obcordate, distinct. (*Don's Mill.*, i. p. 300.) A shrub growing to the height of 3 ft. or 4 ft.; a native of Crete; and producing its white flowers in June and July. It is uncertain when it was introduced; but plants of it were in the Fulham Nursery in 1826. Sweet says that it is frequently confused with *C.* monspeliénsis, though no two plants need be more distinct, and it is much nearer related to *C.* hirsùtus.

✿ 23. *C.* LE`DON *Lam.* The Ledon Cistus, *or Rock Rose.*

Identification. Lam. Dict., 2. p. 17.; Duh. Arb., 1. p. 168. t. 66. Don's Mill., 1. p. 300.
Synonymes. *C.* undulàtus *Link?* *C.* ladaníferus monspeliénsium *Bauh.*; Ciste de Montpelier qui donne du ladanum, Ciste de Ledon, *Fr.*
Engraving. Duh. Arb., 1. p. 168. t. 66.

Spec. Char., *&c.* Leaves connate, oblong-lanceolate, nerved; upper surface smooth, shining, under surface silky, villous. Flowers corymbosely cymose. Peduncles and calyx clothed with silky hairs. (*Don's Mill.*, i. p 300.) Found wild in the south of France, and figured and described by Du Hamel in 1755. He says ladanum is obtained from this species, and from others that are easily known by their having the smell of that gum. In catalogues, this species is marked as having been introduced in 1730; but Mr. Sweet remarks, in 1829, that he had not seen it about London for the last 10 years.

✿ 24. *C.* HIRSU`TUS *Lam.* The hairy Cistus, *or Rock Rose.*

Identification. Lam. Dict., 2. p. 17.; Clus. Hist., 1. p. 78.; Don's Mill., 1. p. 300.
Engraving. Swt. Cist., t. 19.

Spec. Char., *&c.* Leaves sessile, oblong, blunt, hairy. Peduncles short, 1-flowered, or cymosely many-flowered. Capsules small, covered by the large, hairy, pyramidal calyx. (*Don's Mill.*, i. p. 300.) A shrub growing to the height of 4 ft.; a native of France and the mountains of Spain; producing its white flowers in June and July; and cultivated in England in the year 1656. It forms a pretty little branching bush, readily distinguished from all other species of this section, by its very large pyramidal calyx, and small capsules. It bears our winters, in the open borders, without protection, except when the frost is very severe. It produces a great profusion of flowers, which continue to expand in succession for a considerable time. Plants were in the Fulham Nursery in 1826.

✿ 25. *C.* SIDERI`TIS *Presl.* The Ironwort-*like* Cistus, *or Rock Rose.*

Identification. Spreng. Syst. Append., p. 204.; Don's Mill., 1. p. 300.

Spec. Char., *&c.* Decumbent. Leaves stalked, obovate, a little wrinkled, covered with hoary tomentum on the under surface. Peduncles elongated, 1—2-flowered, articulated above; and are, as well as the calyx, tomentose. Flowers nodding before expansion. (*Don's Mill.*, i. p. 300.) A decumbent shrub, with white flowers from June to August, found on rocks in Sicily, and not yet introduced into British gardens.

✿ 26. *C.* LA´XUS *Ait.* The loose-*flowering* Cistus, *or Rock Rose.*

Identification. Ait. Hort. Kew., 3. p. 305.; Don's Mill., 1. p. 300.
Synonymes. ? *C.* capénsis *Lin. Sp.* 736.; schlaffe Cisten Rose, *Ger.*
Engraving. Swt. Cist., t. 12.

Spec. Char., *&c.* Leaves on short footstalks, ovate-lanceolate, acuminated, with wavy somewhat toothed margins, smoothish, upper ones hairy. Flowers cymose. Peduncles and calyx hairy. (*Don's Mill.*, i. p. 300.) A shrub 3 ft. high, with white flowers and imbricate petals. Found wild in Spain and Portugal, and introduced into England in 1656. It is erect, and not much branched; quite hardy, or requiring only very slight protection in very severe frost. Dumont thinks it probable that it is only a variety of *C. Lèdon.*

27. *C.* OBLONGIFO`LIUS *Swt.* The oblong-leaved Cistus, *or Rock Rose.*

Identification. Swt. Cist., t. 87.; Don's Mill., 1. p. 300.
Engraving. Swt. Cist., t. 67.

Spec. Char., &c. Erect. Branches hispid, villous. Leaves on short footstalks, oblong-lanceolate, obtuse, pubescent, and waved at the margins; under surface veiny. Peduncles cymose. Petals concave, imbricated. (*Don's Mill.*, i. p. 300.) A native of Spain, attaining the height of 4 ft., and producing its white flowers in June and July. When it was introduced into England is uncertain; but Sweet found plants which appeared to him to be of this species in Colvill's Nursery in 1826. It forms a strong handsome evergreen shrub, which is quite hardy, and of the easiest culture.

### 28. *C.* ASPERIFO`LIUS *Swt.* The rough-leaved Cistus, *or Rock Rose.*

Identification. Swt. Cist., t. 87. Don's Mill., 1. p. 300.
Engraving. Swt. Cist., t. 87.

Spec. Char., &c. Leaves almost sessile, ovate-lanceolate, acute, 3-nerved, wrinkled, smoothish, with wavy margins, somewhat denticulated, ciliated, netted with veins beneath, with the nerves and veins rough. Flowers cymose. Peduncles and calyxes hairy. Petals imbricate. (*Don's Mill.*, i. p. 300.) A shrub growing to the height of 2 ft., and producing its large white flowers from May to August. Its native country is uncertain; and Sweet says it may probably be a garden production, and, if so, intermediate between *C.* láxus and *C.* oblongifòlius. It forms a handsome, strong, upright, evergreen shrub, and is quite hardy, producing its flowers all the summer, and till late in autumn, in the open border. There were plants of it in Colvill's Nursery in 1826.

29. *C.* PSILOSE′PALUS *Swt.* The glabrous-sepaled Cistus, *or Rock Rose.*

Identification. Swt. Cist., t. 33.; Don's Mill., 1. p. 300.
Engraving. Swt. Cist., t. 33.

Spec. Char., &c. Leaves on short footstalks, oblong-lanceolate, 3-nerved, acute, with undulated margins, which are somewhat denticulated and ciliated, rather hairy. Flowers somewhat cymose. Peduncles hairy, tomentose. Sepals with long points, glabrous, shining, and with ciliated edges. Petals broad, cuneated, imbricated. (*Don's Mill.*, i. p. 300.) A shrub growing from 2 ft. to 3 ft. high, with white flowers in July and August. Apparently a garden production. Plants of it were in the Hammersmith Nursery in 1826. It approaches near to *C.* longifòlius, but is very different, according to Sweet, from that species. The plants are bushy, and the shoots are terminated by large cymes of white flowers, which open in succession, and produce a contrast with the dark green leaves with which the plants are clothed.

b. *Peduncles with small, concave, coriaceous, yellowish, decussate, caducous Bracteoles at the Base; and with two larger opposite ones beneath the Middle.*

30. *C.* LONGIFO`LIUS *Lam.* The long-leaved Cistus, *or Rock Rose.*

Identification. Lam. Dict., 2. p. 16.; Don's Mill., 1. p. 300.
Synonymes. Cístus nígricans *Pourr. Act. Toul.*, 3. p. 311.; *C.* populifòlius var. longifòlius *Dumont.*

Spec. Char., &c. Leaves on short peduncles, oblong-lanceolate, with waved and pubescent margins; under surface veiny. Peduncles cymose. (*Don's Mill.*, i. p. 300.) A shrub growing to the height of 4 ft., and producing its white flowers in July and August. It does not appear to have been introduced into England. Dumont de Courset, in his *Botaniste Cultivateur*, says that this species is only a variety of *C.* populifòlius; seeds of the latter having, with him, produced the former.

31. *C.* POPULIFO`LIUS *L.* The Poplar-leaved Cistus, *or Rock Rose.*

Identification. Lin. Sp., 736.; Don's Mill., 1. p. 300.
Synonymes. Ciste à Feuilles de Peuplier, *Fr.*; Pappel-blättrige Cisten Rose, *Ger.*

Variety.

C. p. 2 *minor* Dec. Prod., 1. p. 266.—Peduncles and calyx smoothish, shining, clammy. *Lèdon* latifòlium, ii., *Clus. Hist.*, i. p. 78.; Cístus populifòlius *Cav. Icon.*, 3. 215., *Swt. Cist.*, 23.

Spec. Char., &c. Leaves stalked, cordate, acuminate, wrinkled, smooth. Flowers cymose. Peduncles brateate. Bracteas oblong. Sepals acuminate, clammy. (*Don's Mill.*, i. p. 300.) A shrub of vigorous growth, attaining the height of from 3 ft. to 5 ft. in British gardens, into which it was introduced in 1656. It has large dark green cordate leaves, with undulate margins, and white flowers, with distinct petals, which it produces from May to July. It is one of the most robust of the species, and is found wild both in the south of France and in Spain and Portugal. It is of the easiest culture, but requires a little protection in very severe winters. Plants were in the Hammersmith Nursery in 1826.

32. *C.* LATIFO`LIUS *Swt.* The broad-leaved Cistus, *or Rock Rose.*

Identification. Swt. Cist., 15.; Don's Mill., i. p. 300.
Synonymes. Cístus populifòlius var. α màjor *Dec. Prod.*, 1. p. 266.
Engraving. Swt. Cist., t. 16.

Spec. Char., &c. Leaves stalked, broadly cordate, acute; with curled, waved, denticulated, ciliated margins. Peduncles bracteate, somewhat cymose, pilose. Sepals broad, cordate, villous. Petals imbricated. (*Don's Mill.*, i. p. 300.) A shrub from Barbary, with white flowers from May to July, growing to the height of 3 ft. or 4 ft., cultivated in British gardens since 1656. It has broadly cordate leaves, with reflexed points, and imbricate, obcordate petals. It is a most ornamental plant, robust in its growth, but rather tender. Plants of it were in the Hammersmith Nursery in 1826. We have no doubt that this and the two preceding sorts are nothing more than varieties of the same race.

B. *Peduncles bracteate with caducous decussate Bracteas, lower ones smaller; 1-flowered, axillary and solitary, or terminal and umbellate. Calyx of* 3 *Sepals. Capsules* 5—10-*celled*

a. *Stigma large, sessile.*

33. *C.* LAURIFO`LIUS *Lin.* The Laurel-leaved Cistus, *or Rock Rose.*

Identification. Lin. Sp., 736.; Swt. Cist., t. 52.; Clus. Hist., 1. p. 78. f. 1.; Don's Mill., 1. p. 300.
Synonymes. Ciste à Feuilles de Laurier, *Fr.*; Lorbeer-blättrige Cisten Rose, *Ger.*
Engravings. Swt. Cist., t. 52.; Clus. Hist, 1. p. 78. f. 1.

Spec. Char., &c. Leaves stalked, ovate-lanceolate, 3-nerved, upper surface glabrous, under surface tomentose. Footstalks dilated, and connate at the base. Capsules 5-celled. (*Don's Mill.*, i. p. 300.) A shrub growing in British gardens to the height of 4 ft. or 5 ft., and producing large white flowers in July or August. It is a native of the south of France and Spain, and was introduced into England in 1771. It is a robust bush, with large green laurel-like leaves: it produces an abundance of flowers, which, with their light red bracteas, are very ornamental before they expand, resembling, at a distance, the bursting buds of roses. It requires no protection, and may be raised from seeds, which it ripens in abundance, and also by cuttings, which, however, do not strike so freely as in some of the other species.

34. *C.* CY´PRIUS *Lam.* The *Gum* Cistus, *or* Cyprus *Rock Rose.*

Identification. Lam. Dict., 2. p. 16.; Don's Mill., 1. p. 300.
Synonymes. *C.* ladaníferus *Bot. Mag.*, t. 112.; Cístus stenophýllus *Link. Enam.*, 2. p. 74.?; *C.* salicifòlius of some.
Engraving. Swt. Cist., t. 39.

Spec. Char., &c. Leaves stalked, oblong-lanceolate, upper surface glabrous, under surface clothed with hoary tomentum. Peduncles generally many-flowered. Petals spotted. Capsules 5-celled. (*Don's Mill.*, i. p. 300.) A splendid shrub, growing in British gardens to the height of 5 ft. or 6 ft.; introduced from the Island of Cyprus in 1800. Its flowers are large, 2½ in. or 3 in. across; white, imbricated, each petal having a dark, rich, brownish crimson spot at the base. It is one of the handsomest species of the genus, and one more generally in demand than any other. In the nurseries, it is generally found under the name of *C.* ladaníferus, or that of *C.* salicifòlius. Young plants require protection; but when they get to the height of 3 ft. or 4 ft. they are tolerably hardy. Young cuttings, Sweet observes, planted under hand-glasses in autumn, will strike root; but the best way is to raise them from layers or from seed. There is a plant of this species at Minard, in Argyllshire, 7 ft. 9 in. high, with a head 12 ft. in diameter, which is clothed with flowers every year. In the London nurseries, where this species is generally called *C.* ladaniferus, or by its English name of gum cistus, plants are from 1*s.* to 1*s.* 6*d.* each.

35. *C.* LADANÍFERUS *L.* The Ladanum-bearing *Gum* Cistus, *or Rock Rose.*

Identification. Lin. Sp., 737.; Don's Mill., 1. p. 300.
Synonymes. Ciste ladanifère, *Fr.*; Ladanum Cisten Rose, *Ger.*

Varieties. C. *l.* 1. *albiflòrus* Dec. Prod., i. p. 266., Swt. Cist., t. 94.; *L*èdon, i., *Clus. Hist.*, i. p. 78. ic.; and C. *l.* 2 *maculàtus* Dec. Prod., l. c., Swt. Cist., *C.* l. 3 plenifòlius *Ait. Hort. Kew.*, iii. p. 305., are varieties of this species.

Spec. Char., &c. Leaves almost sessile, connate at the base, linear-lanceolate, 3-nerved, upper surface glabrous, under surface tomentose. Capsule 10-celled. Petals imbricate. (*Don's Mill.*, i. p. 301.) A shrub 4 ft. high, a native of Spain and Portugal, upon hills; introduced into England in 1629, and producing large white flowers in June and July. The leaves are lanceolate, and nearly sessile, of a deep green; the flowers terminating the branches, solitary, white, and large; each flower being from $1\frac{1}{2}$ in. to 2 in. broad. The plant requires a little protection during winter, and was to be had in Colvill's Nursery in 1826. This species, as well as *C. L*èdon and *C.* créticus, and doubtless various others, produces the resinous exudation known as gum ladanum, the mode of gathering which is described in p. 320.

b. *Stigma capitate, small. Style cylindrical, equalling the Stamens in Length.*

36 *C.* Clu`sii Dunal. Clusius's Cistus, *or Rock Rose.*

Identification. Dunal. ined., Dec. Prod., 1. p. 266.; Swt. Cist., 32.; Don's Mill., 1. p. 301.
Synonymes. Cístus *L*ibanòtis β *Lam. Dict.*, 2. p. 18., *Desf. Atl.*, 1. p. 412.; *C.* undulàtus *Link*; *L*èdon, vii., *Clus. Hist.*, 1. p. 80. ic.
Engraving. Swt. Cist., t. 32.

Spec. Char., &c. Erect. Leaves somewhat 3-nerved, linear, with revolute margins, under surface canescent. Flowers somewhat capitate. Calyx 3—5-sepaled, pilose. Sepals ovate, acute. Capsules 5-celled. (*Don's Mill.*, i. p. 301.) A shrub 2 ft. high, from Spain and Barbary, in 1810. The leaves and flowers are smaller than those of any of the other sorts here described. The plant forms a handsome and compact bush, and stands the winter well in a dry situation. It approaches the nearest to *C.* monspeliénsis. Plants were in the Fulham Nursery in 1826.

GENUS II.

HELIA'NTHEMUM. THE HELIANTHEMUM, *or* SUN *ROSE.* *Lin. Syst.* Polyándria Monogýnia.

Identification. Tourn. Inst., 248. t. 128.; Gært. Fr., 1. p. 371. t. 76.; Dec. Fl. Fr., 4. p. 815.; Prod., 1. p. 265.; Don's Mill., 1. p. 301.
Synonymes. Císti species of Lin.; Heliantheme Sonnen Gurtel, *Ger.*
Derivation. From *hēlios,* the sun, and *anthemon,* a flower; because the flowers open with the rising of the sun in the morning, and the petals fall off with the setting of the sun in the evening. The flowers of Heliánthemum, as well as of Cístus, only last for a few hours when the sun shines; and if the weather is dull, and the sun does not make its appearance, the flowers do not open, but remain unexpanded. Should this continue for several days together, they will decay in the bud.

Gen. Char. Calyx of 3—5 sepals; when 3, these are equal, and disposed in a single series; but, when 5, they are unequal, and disposed in a double one; the two outer sepals are usually smaller than the inner ones, very rarely larger. *Petals* 5, usually regularly denticulated at the top. *Stigma* capitate. *Style* sometimes almost wanting, sometimes straight, sometimes oblique, and sometimes bent at the base. *Ovary* triquetrous. *Capsule* 3-valved; valves with a narrow dissepiment, or a seminiferous nerve in the middle of each. *Seeds* angular, smooth. *Albumen* mealy. *Embryo* uncinately inflexed — Erect or trailing herbs, subshrubs, or shrubs. Leaves opposite and alternate, with or without stipules, 3-nerved or feather-nerved. Pedicels usually furnished with bracteas at the base sometimes opposite the bracteas, or opposite the leaves, sometimes solitary, sometimes umbellate, and sometimes racemose; and, before the flowers expand, the racemes at the top are bent or twisted backwards, and become gradually erect as the flowers expand. (*Dec. Prod.* and *G. Don.*) Flowers yellow, red, or white. All the species are ornamental; those which form erect bushy undershrubs are suitable for warm dry borders; and those which are trailers of the lowest size, for growing on rockwork, for ornamenting old walls or ruins, or for growing in pots. This genus has been arranged by De Candolle in three divisions, which have been subdivided into sections. The divisions are as fòllows: —

I. Style straight, erect, almost wanting, or shorter than the stamens. Stigma capitate. § i. ii. and iii., Halímium, Lecheöìdes, and *Tuberària*, belong to this division.

II. Style straight, erect, equal with or longer than the stamens. § iv. and v., Maculària and Brachypétalum, belong to this section; but, as they are entirely herbaceous, we omit them.

III. Style bent at the base; to which belong § vi. vii. viii. and ix., Eriocárpum, *Fumàna*, Pseùdo-Cístus, and Euheliánthemum.

§ i. *Halímium* Dec. Prod., 1. p. 267.

Derivation. From *halimos*, marine; alluding to the habitation of the plants by the sea-side. (*Don's Mill.*, 1. p. 301.)

Sect. Char. Calyx usually of 3 equal sepals; rarely of 5 unequal sepals, but when this is the case the two outer ones are the smallest. Petals rarely white, usually yellow, wedged-shaped, truncate, and marked at the base with a dark bloody or intense yellow spot. Style straight, short or almost wanting. Stigma capitate, somewhat 3-lobed. Seeds few, blackish, minutely muricated, and somewhat angular. Erect shrubs. Leaves opposite, 3-nerved, without stipules, pilose, or tomentose. Peduncles 1 — 3-flowered, axillary, solitary, or umbellate, or rarely panicled. (*Dec.* and *G. Don.*)

A. *Style short, straight.*

n 1. H. *Libano`tis* *Willd.* The Rosemary-*leaved* Helianthemum, *or Sun Rose.*

Identification. Willd. Enum., 570.; Don's Mill., 1. p. 301.
Synonymes. Cístus Libanòtis *Lin. Sp.*, 739., *Brot. Fl. Lus.*, 2. p. 261., but not of Lam. or Desf.; H. rosmarinifòlium *Lag. in Litt.*, but not of Pursh; *Barrel. Icon.*, 294.; Lèdon, viii., *Clus. Hist.*, i. p. 80. ic.; Ciste à Feuilles de Rosmarin, *Fr.*

Spec. Char., &c. Erect, smoothish, branched. Leaves sessile, linear, with revolute margins; upper surface brownish green, under surface somewhat canescent. Bracteas oblong-linear, shorter than the peduncles. Peduncles solitary, 1-flowered. Calyx of 3 sepals, smooth, shining, ovate-acuminate. (*Don's Mill.*, i. p. 301.) A shrub growing to the height of 1 ft., a native of Portugal and Mauritania, and introduced into England in 1752. It produces yellowish-white flowers in June and July, and is of the easiest culture.

n 2. H. umbella`tum *Mill.* The umbellate-*flowered* Helianthemum, *or Sun Rose.*

Identification. Mill. Dict., No. 5.; Don's Mill., 1. p. 302.
Synonymes. Cístus umbellàtus *Lin. Sp.*, 739.; Cístus Libanòtis of some.

Spec. Char., &c. Suffruticose, branched, younger branches tomentosely pilose, clammy. Leaves sessile, linear-oblong, with revolute margins, clammy; under surface tomentose. Peduncles 1-flowered, disposed in whorled racemes, terminal, umbellate. Calyx 3-sepaled, villous. (*Don's Mill.*, i. p. 302.) An undershrub 1 ft. high, with white flowers from June to August. Introduced into England in 1731. This is a very handsome and very distinct sort, well adapted for ornamenting rockwork, or for growing in pots. Sweet says it is generally sold in the nurseries under the name of Cístus Libanòtis. Plants were in the Hammersmith Nursery in 1825.

Varieties.

✿ *H. u.* 2 *eréctum* Dec. (Swt. Cist., 5.), Cístus umbellàtus *Lam.*, Cístus verticillàtus *Brot.*, has the stem erect, and the leaves on the under surface clothed with greenish tomentum.

✿ *H. u.* 3 *subdecúmbens* Dec., Cístus umbellàtus var. *a Lam.*, has the stem somewhat decumbent. Leaves somewhat ciliated, and clothed with white tomentum on the under surface.

✿ 3. H. OCYMÖI`DES *Pers.* The Basil-like Helianthemum, *or Sun Rose.*

Identification. Pers. Syn., 2. p. 76.; Don's Mill., 1. p. 302.
Synonymes. Cístus ocymöìdes *Lam. Dict.*, 2. p. 18.; Cístus sampsucifòlius *Cav. Icon.*, 1. p. 65. t. 96.
Engraving. Clus. Hist., 1. p. 72. ic.
Varieties. Two are mentioned by De Candolle; one of them with the peduncles glabrous, and the other with the branches and peduncles rather hairy.

Spec. Char., &c. Erect, branched. Branches hoary. Cauline leaves obovate, or ovate-oblong, 3-nerved, almost sessile, green; those of the branches are stalked, and keeled on the back, reflexed at the top, hoary on both surfaces. Peduncles long, branched, paniculate. Pedicels opposite, somewhat umbellate. Calyx of 3 much-pointed sepals. (*Don's Mill.*, i. p. 302.) A shrub growing to the height of 3 ft., a native of Spain and Portugal; but when introduced into England is uncertain. According to Sweet, this species is very often confused in the collections with H. algarvénse, though it is very different. It is a very handsome undershrub, and, being rather tender, requires the protection of a wall, or a covering of mats during severe frosty weather.

B. *Style almost none. Stigma large.*

✿ 4. H. ALYSSÖI`DES *Vent.* The Alyssum-like Helianthemum, *or Sun Rose.*

Identification. Vent. Choix., t. 20.; Lam. Dict., 2. p. 20.; Dec. Fl. Fr., 4. p. 818.; Don's Mill., i. p. 302.
Synonymes. Cístus alyssöìdes α *Lam. Dict.*, 2. p. 20., *Dec. Fl. Fr.*, 4. p. 818., *Don's Mill*, 1. p. 302.
Engraving. Vent. Choix., t. 20.

Spec. Char., &c. Erect, much branched, diffuse, spreading. Branches hoary, tomentosely hairy at the top. Leaves sessile, tapering towards the base, oblong-ovate, bluntish, covered with short hairs; younger ones rather hoary, adult ones green. Peduncles terminal, solitary, or umbellate, 1—2-flowered, longer than the leaves. Calyx 3-sepaled, acuminated, hairy. (*Don's Mill.*, i. p. 302.) A shrub, native of Spain and the west of France, growing to the height of 3 ft., and producing its yellow flowers from June to August. It is remarked of the flower-buds, that they are of an intense purple colour at the apex. It does not appear to be in cultivation in British gardens.

✿ 5. H. RUGO`SUM *Dun.* The wrinkled-*leaved* Helianthemum, *or Sun Rose.*

Identification. Dunal. ined. Dec. Prod., 1. p. 268.; Swt. Cist., t. 65.; Don's Mill., 1. p. 302.
Engraving. Swt. Cist., t. 65.

Spec. Char., &c. Erect. Branches rather hairy, clothed with leprous tomentum, scabrous, of a brownish grey colour. Leaves sessile, tapering into the footstalks at the base, obovate-oblong, bluntish, rather oblique, with the margins somewhat denticulated, and a little curled, tomentose on both surfaces, wrinkled, under surface hoary. Peduncles terminal, axillary, or umbellate, 1—3-flowered, hairy, shorter than the leaves. (*Don's Mill.*, i. p. 302.) A shrub 3 ft. high, a native of Spain, introduced in 1800, and producing its fine yellow flowers from June to August. Its stem is shrubby, erect, or a little flexuose; the branches spreading, more or less hairy; the young shoots reddish; and the flowers terminal, with broadly ovate petals of a golden yellow, each with a large dark spot near the base. It is distinguished from all other sorts by the stiff bristle-like purple hairs of its calyx. It is rather tender, but it will amply repay protection, either against a wall or in a pit. Plants were in the Bristol Nursery in 1827.

✿ 6. H. MICROPHY'LLUM *Swt.* The small-leaved Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 96.; Don's Mill., 1. p. 302.
Synonymes. H. rugòsum β microphýllum *Dec. Prod.*, 1. p. 268.; H. alyssöìdes β microphýllum *Dec. Fl. Fr. Suppl.*, p. 622.

Engraving. Swt. Cist., t. 96.

Spec. Char., *&c.* Much branched, erect. Branches blackish grey, hairy, tomentose at the apex. Leaves almost sessile, obtuse, keeled, tapering to the base, obscurely greyish, tomentose. Flowers terminal, panicled. Pedicels 1—3-flowered, very short. Calyx of 3 sepals, very hairy. Petals cuneated, distinct. (*Don's Mill.*, i. p. 302.) A suffruticose bush, seldom growing higher than 2 ft.; found in the west of France, near Bourdeaux, and introduced into England in 1800. The leaves are small, nearly sessile, very glaucous. The petals are of a bright yellow; and the plant flowers from June to August, or later. It is commonly kept in a green-house or pit, in pots; but it will stand in the open air, if planted near a wall or fence, protected during severe weather by mats. Plants of it were in the Chelsea Botanic Garden in 1828.

⌂ 7. H. SCABRO`SUM *Pers.* The rough Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 76.; Brot. Fl. Lus., 2. p. 265.; Don's Mill., i. p. 302.
Synonyme. Cístus scabrôsus *Ait. Hort. Kew.*, 2. p. 236.
Engravings. Swt. Cist., t. 81.; and our *fig.* 68.

Spec. Char., *&c.* Erectish. Branches pilosely tomentose, scabrous, canescent. Leaves sessile, tapering to the base, oblong-ovate, acutish, roughish, 3-nerved, with waved revolute margins; upper surface green; under surface clothed with grey tomentum. Peduncles terminal, 1—2-flowered, shorter than the leaves. Calyx 3-sepaled, hairy. Petals distinct. (*Don's Mill.*, i. p. 302.) A shrub, from the north of Portugal, growing to the height of 3 ft.; cultivated in British gardens since 1775; and producing its fine yellow flowers from June to August. It forms a handsome little bush, and requires a sheltered situation. Plants of it were in the Bristol Nursery in 1827.

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⌂ 8. H. ALGARVE´NSE *Dun.* The Algarve Helianthemum, *or Sun Rose.*

Identification. Dun. ined.; Dec. Prod., 1. p. 268.; Swt. Cist., t. 40.; Don's Mill., 1. p. 302.
Synonymes. Cístus algarvénsis *Bot. Mag.*, t. 627.; H. algarvénse *Tourn. Inst.*, 250.?
Engraving. Swt. Cist., t. 40.

Spec. Char., *&c.* Stem branched. Leaves sessile, ovate-lanceolate, obtuse; hoary on the under surface; upper surface green, pilose. Peduncles somewhat panicled, pilose. Calyx 3-sepaled, acute, hairy. (*Don's Mill.*, i. p. 302.) A shrub 3 ft. high, found in Portugal, in the Algarves; introduced into England in 1800; and producing its fine deep-yellow flowers from June to August. The petals are crenated, with a dark base, similar in colour to those of Calliópsis bícolor. According to Sweet, this species is nearly allied to H. ocymöìdes. It is rather tender, and requires protection during winter. Plants of it, at 1*s.* 6*d.* each, may be obtained in all the London nurseries.

⌂ 9. H. FORMO`SUM *Dun.* The beautiful Helianthemum, *or Sun Rose.*

Identification. Dunal. ined. Dec. Prod., 1. p. 268.; Don's Mill., 1. p. 302.
Synonyme. Cistus formôsus *Bot. Mag.*, t. 264.

Spec. Char., *&c.* Erect. Branches tomentosely villous, canescent. Leaves on short footstalks, obovate-lanceolate, tomentosely villous, younger ones hoary. Peduncles and calyxes villous. Calyx 3-sepaled. (*Don's Mill.*, i. p. 302.) A shrub growing to the height of 4 ft., introduced in 1780, and producing its fine large flowers, with yellow dark-spotted petals, from May to July. The stem is erect and much branched, the leaves lanceolate and 3-nerved, and the flowers the largest of the genus. It is a most desirable plant to keep in pots, and turn out into borders in the spring; or, by keeping it against a wall and protecting it with mats, it will produce a fine show of flowers from the beginning of May to the end of July. It ripens seeds in abundance; but, as Sweet remarks, "the colour of the flowers varies considerably on different plants," and therefore the seeds should always be saved from those of the brightest colours. Plants are to be procured in all the London nurseries.

n 10. H. *ATRIPLICIFO`LIUM* *Willd.* The Orache-leaved Helianthemum, *or Sun Rose.*

Identification. Willd. Enum., 569.; Don's Mill., 1. p. 302.
Synonyme. Cístus *a*triplicifòlius *Lam. Dict.*, 2. p. 19.
Engraving. Barrel. Icon., t. 292.

Spec. Char., *&c.* Erect. Branches white from leprous tomentum. Leaves stalked, broad-ovate, bluntish, waved at the base, covered with leprous tomentum on both surfaces. Peduncles racemose, hairy. Calyx hairy, 3-sepaled, rarely 5-sepaled, with the two outer ones very minute. (*Don's Mill.*, i. p. 302.) A shrub growing to the height of 3 ft., with leaves like those of *A*'triplex *H*álimus; introduced from Spain in 1826, and producing its yellow flowers in June and July. Mr. Sweet observes, in 1829, that this species, he believes, has "quite disappeared from our collections."

n 11. H. LASIA'NTHUM *Pers.* The hairy-flowered Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 76.; Don's Mill., i. p. 302.
Synonyme. Cístus lasiánthus *Lam. Dict.*, 2. p. 19.
Engraving. ? Barrel. Icon., t. 289.

Spec. Char., *&c.* Stem suffruticose, and much branched. Branches dark-cinereous, at top tomentosely hairy. Leaves almost sessile, ovate-oblong, often blunt, keeled, of an obscure greyish colour, tomentose. Peduncles 1—2-flowered, hairy, very short. Calyx usually 3-sepaled, very hairy. (*Don's Mill.*, i. p. 302.) A shrub 3 ft. high, from Spain, introduced in 1826, and producing its yellow flowers in June and July.

n 12. H. INVOLUCRA`TUM *Pers.* The involucrated-*flowered* Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 76.; Don's Mill., 1. p. 302.
Synonyme. Cístus involucràtus *Lam. Dict.*, 2. p. 20.

Spec. Char., *&c.* Branched, erect. Branches rather greyish, tomentose. Lower leaves stalked, somewhat ovate, small, hoary-tomentose; upper ones oblong-lanceolate, sessile, greenish, and roughish. Peduncles very short, surrounded by the leaves. Calyx 5-sepaled, inner ones hoary-tomentose, outer ones linear, smoothish, and greenish. (*Don's Mill.*, i. p. 302.) An erect shrub, 2 ft. high, from Spain and Portugal, in 1826, which produces its yellow flowers in June and July.

n 13. H. CHEIRANTHÖI`DES *Pers.* The Wallflower-like Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 76.; Don's Mill., 1. p. 303.
Synonymes. Cístus cheiranthöìdes *Lam. Dict.*, 2. p. 19.; ? Cístus elongàtus *Vahl. Symb.*, 1. p. 38. Cístus *h*alimifòlius, ii., *Clus. Hist.*, 1. p. 71.
Engraving. Swt. Cist., t. 107.

Spec. Char., *&c.* Erect, branched; younger branches villously tomentose, hoary. Leaves tomentose, hoary, oblong-lanceolate, tapering into the footstalks. Peduncles very short, 2-flowered. Calyx somewhat villous, 5-sepaled, outer sepals very minute. (*Don's Mill.*, i. p. 303.) An erect handsome bushy shrub, growing to the height of 3 ft., and producing yellow flowers, without dark spots on the petals, in July and August. This very handsome species, Sweet observes, was in the Bristol Nursery in 1828.

n 14. H. CA'NDIDUM *Swt.* The white-*leaved* Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 25.; Don's Mill., 1. p. 303.
Engraving. Swt. Cist., t. 25.

Spec. Char., *&c.* Erect. Branches leprously white. Leaves, which are obovate-lanceolate, equally white on both surfaces, and tapering to the base; somewhat stalked, upper surface pilose, under surface scabrous from papillæ, rather 3-nerved; floral ones opposite, sessile, and green on both surfaces. Peduncles long and rather panicled, glabrous or with a few scattered hairs. Calyxes with 3 or 5 acute sepals, villous. Petals imbricated. (*Don's Mill.*, i. p. 203.) A shrubby, erect, much branched plant, from Spain, with bright yellow flowers from June till August. When it was introduced is uncertain, but in 1826 it was in the Fulham Nursery, under the name of H. algarvénse. It is somewhat tender, but a highly ornamental species, the flowers resembling those of Calliópsis bícolor.

15. H. *HALIMIFO`LIUM* *Willd.* The Sea-Purslane-leaved Helianthemum, *or Sun Rose.*

Identification. Willd. Enum., 569. ; Swt. Cist., t. 4. ; Don's Mill., i, p. 303.
Synonymes. Cìstus *h*alimifòlius *Lin. Sp.*, 738. ; Cìstus fòlio *Hàlimi*, i., *Clus. Hist.*, 1. p. 71.
Engraving. Swt. Cist., t. 4.

Spec. Char., &c. Erect, branched. Branches leprously white at the top, as well as the leaves, on both surfaces. Leaves on very short footstalks, ovate-oblong, tapering to the base. Peduncles long, branched, somewhat panicled, leprously white. Calyx leprous, 5-sepaled, two outer ones very narrow, linear. (*Don's Mill.*, 1. p. 303.) An erect bush, growing to the height of 3 ft.; found in Spain and Portugal by the sea-side, and cultivated in England since 1656; producing beautiful yellow flowers, spotless, or each marked with a small dark bloody spot at the base, in July and August. It is somewhat tender during winter, but grows freely during summer, and ripens abundance of seeds. Plants of it were in Colvill's Nursery in 1826. De Candolle notices a variety with obtuse leaves.

§ ii. *Lecheöìdes* *Dec. Prod.*, i. p. 269.

Derivation. From *Lechèa*, and *eidos*, appearance; plants with the habit of some species of Lechèa.

Sect. Char. Calyx 5-sepaled, 2 outer sepals narrow, linear, 3 inner ones acute, with scarious margins. Petals yellow. Style almost wanting, or very short, erect. Stigma large, capitate. Ovary triangular. Capsule smooth, shining, 3-valved, 1-celled. Seeds rufescent, small. Stems herbaceous or suffruticose, ascendant or erect, usually dichotomous. Lower leaves opposite, cauline ones alternate, feather-nerved, on short footstalks or sessile, without stipules. (*Don's Mill.*, i. p. 303.) The species included in this section have generally very small flowers; and, as remarked below, their flowers are frequently apetalous.

A. *Peduncles many-flowered. Flowers small, crowded.*

16. H. CORYMBO`SUM *Michx.* The corymbose-*flowered* Helianthemum, *or Sun Rose.*

Identification. Michx. Fl. Bor. Amer., 1. p. 307. ; Don's Mill., 1. p. 303.

Spec. Char., &c. Suffruticose, branched, erect. Branches dichotomous, rather pubescent, somewhat tomentosely cinereous at the top. Cauline leaves alternate, oblong-lanceolate, bluntish; under surface clothed with woolly tomentum; upper leaves with revolute margins. Corymbs fastigiate, crowded. Calyx tomentosely hairy, canescent; outer sepals linear, blunt; inner ones ovate acute, somewhat shorter than the capsule. (*Don's Mill.*, i. p. 303.) This species is one of the few belonging to the order which are natives of America, having been found by Michaux in New Jersey and Georgia. It grows to the height of about 1 ft., and produces its (?) yellow flowers in July and August. We are not aware of its having been introduced into England.

17. H. GLOMERA`TUM *Lag.* The glomerate-*flowered* Helianthemum, *or Sun Rose.*

Identification. Lag. in Litt. ; Swt. Cist., t. 110. ; Don's Mill., 1. p. 303.
Synonymes. Cìstus glomeràtus *Lag. Gen. et Spec.*, p. 16. ; the cluster-flowered Helianthemum.
Engravings. Swt. Cist., t. 110. ; and our *fig.* 69.

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Spec. Char., &c. Suffruticose, erect, somewhat dichotomous. Branches rather tomentosely cinereous. Leaves lanceolate-oblong, tapering to the base; under surface hoary. Racemes axillary or terminal, many-flowered, smaller than the leaves. Flowers glomerate. (*Don's Mill.*, i. p. 303.) Found wild near Acapulco and Cimupan, in New Spain. Seeds of it were brought to England from Mexico, by Mr. Bullock, in 1823. It is a low but erect undershrub, scarcely reaching 1 ft. in height, and producing very small or apetalous flowers, in July and August. Mr. Sweet remarks that all the species belonging to this section (Lecheöìdes), when they flower in the spring and early in the summer, produce flowers with petals; whereas, when they flower in autumn, they are apetalous. The species in question (H. glomeràtum), he says, had, in his garden, its shoots killed back a good way in winter, so that it did not flower till the autumn, and was, therefore, apetalous, like *fig.* 69. Had the plant been protected during the winter, it would, most probably, he says, have produced plenty of perfect flowers in spring, as is the case with H. *p*olygalæfòlium, H. brasiliénse, H. caroliniànum, and the other American species.

B. *Peduncles 1-flowered, bractless, situated on the Branches.*

♄ 18. H. BRASILIE'NSE *Pers.* The Brazilian Heliantheum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 77.; Swt. Cist., t. 43.; Don's Mill., 1. p 303.
Synonymes. Cístus brasiliénsis *Lam. Dict.*, 2. p. 22.; Cístus alternifòlius *Vahl. Symb.*, i. p. 38.
Engravings. Swt. Cist., t. 43.; and our *fig.* 70.

Spec. Char., &c. Suffruticose. Branchlets simple, hairy. Leaves ovate-oblong, acute, sessile, hairy. Peduncles and calyxes hairy, canescent. Peduncles solitary, 1-flowered, inner sepals ovate, acuminated. (*Don's Mill.*, i. p. 303.) A low shrub, found on the mountains of Brazil, introduced in 1823, and producing bright yellow flowers in June and July. It scarcely reaches 1 ft. in height, and might almost be considered as herbaceous. It is rather tender, and is best preserved when grown in pots, and taken into a frame or green-house during the winter. Plants of it were in the Botanic Garden at Chelsea, in 1826, where it flowered in the spring of that year, with petals, as in *fig.* 70., and in the autumn of the same year, without petals.

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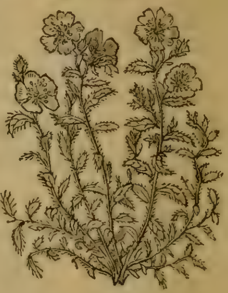

Other Species belonging to this Division of Lecheòides.

H. polygalæfòlium Swt. Cist., t. 11., from Brazil, in 1823, with white flowers, and growing to the height of half a foot. *H. ástylum* Moc. and Sesse, a native of New Spain, has not been introduced; and *H. tripétalum* and *H. obcordàtum* Moc. and Sesse, both from Mexico, are also but little known to botanists, and not in cultivation in British gardens.

§ iii. Tuberària *Dec. Prod.*, i. p. 270.

Derivation, unknown.

Sect. Char. Calyx 5-sepaled, 2 outer sepals smaller or larger, usually spreading. Petals yellow, often marked with a dark purple spot at the base of each, entire, denticulated, serrated. Stamens numerous, much longer than the pistil. Style straight, almost wanting. Stigma capitate. Capsule 3-valved. Seeds minute, yellowish. Roots woody or herbaceous. Stems erect or ascendent. (*Don's Mill.*, i. p. 304.) There is only one ligneous species in this section.

♄ 19. H. LIGNO'SUM *Swt.* The woody Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 46; Swt. Hort. Brit., p. 469. No. 88.; Don's Mill., 1. p. 304.
Engravings. Swt. Cist., t. 46.; and our *fig.* 71.

Spec. Char., &c. Stem tetragonal, shrubby, clothed with rough scaly bark. Branches ascending, covered with hispid hairs. Leaves ovate-oblong, ending in the petiole, 3-nerved, also beset with hispid hairs, canescent; under surface nerved, upper surface furrowed; floral leaves sessile, glabrous, oblong-lanceolate, uppermost ones alternate. Pedicels few, furnished with bracteas at the base, rather panicled, about the length of the calyx. Petals obovate, distinct, spreading. (*Don's Mill.*, i. p. 304.) A shrub about a foot high, a native of the south of Europe, producing its yellow flowers in July and August. Introduced in 1809, by Mr. George Don, in whose father's garden, at Forfar, it was cultivated for many years; but whence he obtained the seeds Mr. Don is uncertain. It is a very curious species, and merits a place in collections of the genus.

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§ iv. *Eriocárpum* Dec. Prod., i. p. 273.

Derivation. From *erion*, wool, and *karpos*, a fruit; because the capsules are pilose.

Sect. Char. Calyx of 5 sepals. Sepals beset with silky hairs on the outside, or rather tomentose, shining on the inside; the 2 outer ones minute, linear, the 3 inner ones ovate, furnished with 4—5 stripes. Petals a little longer than the calyx. Style erectish, bent at the base. Ovary pilose, or villous. Capsule pilose. Seeds numerous, rufescent, small. Subshrubs with round branches, younger ones clothed with cinereous pubescence. Leaves opposite and alternate, bluntish; under surface cano-cinereous. Stipules linear, shorter than the footstalks. Racemes secund, small, opposite the leaves. Flowers crowded, small, sessile, or larger on short pedicels. (*Don's Mill.*, i. p. 306.) Erect and trailing undershrubs.

ħ 20. H. LI'PPII Pers. Lippi's Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 78.; Vahl. Symb., 1. p. 39.; Don's Mill., 1. p. 306.
Synonyme. Cistus Lippii Lin. Mant., 245.

Spec. Char., &c. Stem erect, pubescent, whitish, somewhat bifid, or dichotomous. Leaves opposite and alternate, on short footstalks, elliptic-lanceolate, or linear, oblong, obtuse, rather scabrous, glaucescent; under surface canescent; stipules narrow, erect, of the length of the footstalks. Racemes short. Flowers sessile, crowded, bracteate at the base. Bracteas very minute. (*Don's Mill.*, i. p. 306.) A shrub, a native of Egypt, brought to England in 1820, growing to the height of 1 ft., and producing its yellow flowers in June or July.

ħ 21. H. SESSILIFLO'RUM *Pers.* The sessile-flowered Helianthemum, *or Sun Rose.*

Identification. Pers. Syn., 2. p. 78.; Don's Mill., 1. p. 306.
Synonymes. Cístus sessiliflòrus *Desf. Fl. Atl.*, 1. p. 427. t. 106.
Engraving. Desf. Fl. Atl., 1. t. 106.

Spec. Char., &c. Erect, much branched. Branches pubescent. Leaves opposite and alternate, linear, clothed with very short cinereous tomentum, with revolute margins. Stipules linear, small. Racemes short. Flowers sessile, furnished with minute bracteas. (*Don's Mill.*, i. p. 306.) A shrub, growing from 1 ft. to 2 ft. high, in the north of Africa, on arid hills. It produces its yellow flowers in July and August, but has not yet been introduced into England.

ħ 22. H. KAHI'RICUM *Del.* The Cairo Helianthemum, *or Sun Rose.*

Identification. Del. Fl. Ægyp., t. 31. f. 2.; Don's Mill., 1. p. 307.
Synonyme. Cistus stipulàtus β *Forsk. Ægyp.*, 101.
Engraving. Del. Fl. Ægyp., 93. t. 31. f. 2.

Spec. Char., &c. Stem much branched, twisted at the base. Branches ascendant. Lower leaves opposite, the rest alternate, obovate, with revolute margins, hoary, stipulate; under surface nerved. Racemes secund. Flowers on short pedicels. Pedicels and calyxes villous. Sepals acute. Capsule oblong, villous. (*Don's Mill.*, i. p. 307.) A shrub 1 ft. high, brought from Egypt in 1820, and producing its yellow flowers in June and July.

§ v. Fumàna *Dec.*

Derivation unknown.

Sect. Char. Calyx twisted at the apex before expansion, 5-sepaled; 2 outer sepals narrow, small; 3 inner ones ovate, acuminated, 4—5-veined, with scarious margins. Petals yellow, small, almost twice the length of the sepals. Stamens few. Style straight, rather longer than the stamens; when in flower oblique, after flowering erectish. Stigma capitate, fringed, somewhat 3-lobed. Capsule 3-valved, open, spreading. Seeds few, blackish or rufescent, angular. Stems suffruticose. Leaves linear, sessile, or subsessile, narrow. Pedicels 1-flowered, drooping before the expansion of the flower; when in flower erect, but afterwards reflexed.

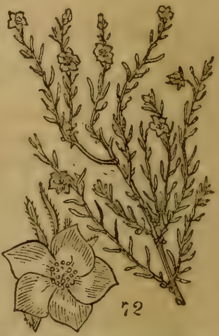
A. *Leaves alternate, without Stipules.*

23. H. *Fumàna* Mill. The Fumana Helianthemum, *or Sun Rose.*

Identification. Mill. Dict., No. 6.; Don's Mill., 1. p. 307.
Synonymes. Cístus *Fumàna* Lin. Sp., 740, Jacq. Aust., t. 252.; Cístus hùmilis, seu Chamæcístus Erìcæ fòlio lùteus erectior *Bauh. Pin.*, 466., *Magn. Bot.*, 69.
Engraving. Jacq. Aust., t. 252.; Swt. Cist., t. 16.; and our *fig.* 72.

Varieties. De Candolle distinguishes three forms of this species: *H.* F. *màjor*, *H.* F. *mìnor*, and *H.* F. *virgàta.*

Spec. Char., &c. Stem branched, twisted, rather diffuse, erectish; lower branches procumbent. Leaves alternate, linear, with pilose, roughish, rather involute margins; lower leaves short, crowded, upper ones scattered and longer. Peduncles solitary, 1-flowered, rarely rameal, usually almost opposite the leaves, or terminal, longer than the leaves. Capsules open, naked. (*Don's Mill.*, i. p. 307.) A shrub 1 ft. high, a native of the south of France, of Switzerland, Italy, Spain, and Portugal; and cultivated in England since the year 1752. It flowers in June and July, and is distinguished by its heath-like leaves and ovate petals. It is a very desirable species for growing in pots, or for the south side of rockwork. Sweet says it is often confused with H. procúmbens, but is readily distinguished when both are growing together. The true H. *Fumàna* was in the Chelsea Botanic Garden in 1825.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24. H. PROCU'MBENS *Dun.* The procumbent *Heath-like* Helianthemum, *or Sun Rose.*

Identification. Dun. ined., and Dec. Prod., 1. p. 275.; Swt. Cist., t. 68.; Don's Mill., 1. p. 317.
Synonymes. Cístus hùmilis, sive Chamæcistus *Ericæ* fòlio humilior, *Magn. Bot.*, p. 69.
Engravings. Barrel. Icon., t. 445.; Swt. Cist., t. 68.

Spec. Char., &c. Stem procumbent, branched. Branches elongated, younger ones hoary. Leaves alternate, linear, rather lax, with the margins pilose, as well as the under surface; strigose. Peduncles almost axillary, shorter than the leaves. Capsules open, bearing the seeds. (*Don's Mill.*, i. p. 307.) A native of the south of France, Italy, and Tauria; and cultivated in the Chelsea Botanic Garden in 1825, where it produced its small yellow flowers from June to August. Uses and culture as in the preceding species.

B. *Leaves alternate, stipulate.*

25. H. ARA'BICUM *Pers.* The Arabian Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 80.; Don's Mill., 1. p. 307.
Synonymes. Cistus arábicus *Lin Sp.*, 745., *Smith's Fl. Græc.*, t. 503.; Cístus ferrugíneus *Lam. Dict.*, 2. p. 25.; Cístus Sàv*i* Bertol.; H. viscídulum *Stev.*
Engravings. Swt. Cist., t. 97.; Smith's Fl. Græc., t. 503.

Spec. Char., &c. Stem hairy, ascendent. Branches twiggy, leaves alternate, linear-oblong, hairy, almost sessile. Peduncles solitary, 1-flowered, almost opposite the leaves, rameal or terminal. Calyxes hairy. (*Don's Mill.*, i. p. 307.) A native of Arabia, Spain, and Italy, where it is a trailing shrub, seldom exceeding half a foot in height; though it acquires double that height in British gardens, where it produces its yellow flowers in June and July. It was introduced before 1826, as plants of it flowered in that year in the Chelsea Botanic Garden.

26. H. LÆ'VIPES *Willd.* The smooth-peduncled Helianthemum, *or Sun Rose.*

Identification. Willd. Enum., 570.; Don's Mill., 1. p. 307.
Synonymes. Cístus læ'vipes *Lin. Sp.*, 739., *Jacq. Hort. Schönb.*, t. 158., *Cav. Icon.*, 2. p. 56. t. 173., *Ger. Gallo-Prov.*, p. 294. No. 6. t. 14.
Engravings. Swt. Cist., t. 24.; Jacq. Schönb., t. 158; Cav. Icon., 2. t. 173.; Jacq. Ger. Gallo-Prov., t. 14.

Spec. Char., &c. Stem ascendent. Leaves stipulate, setaceous, glaucous, smoothish. Buds leafy, axillary. Stipules long, filiform. Peduncles long, disposed in secund racemes. Pedicels glabrous, and bracteate at the base. Calyxes hairy. (*Don's Mill.*, i. p. 307.) A native of the south of Provence, Spain, and Dalmatia, on rocks exposed to the sun, where it forms an undershrub 1½ ft. in height, and produces its yellow flowers from June to August. It is an elegant little plant, but rather tender during winter. Plants of it were in Mr. Colvill's Nursery in 1825.

C. *Leaves opposite and alternate, furnished with Stipules.*

27. H. LǼVE *Pers.* The smooth Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 78.; Don's Mill., 1. p. 307.
Synonymes. Cistus lǽvis *Cav. Icon.*, 2. p. 35. t. 145. f. 1.
Engravings. Cav. Icon., 2. t. 145. f. 1.

Spec. Char., &c. Stem erectish, glabrous, branched. Branches erect. Leaves linear, sessile, glabrous, with revolute margins, keeled, opposite; upper ones alternate, stipulate. Stipules long, awl-shaped. Peduncles solitary, 1-flowered, subterminal. Calyxes smooth. (*Don's Mill.*, i. p. 307.) Found wild on the hills of Spain, and raised in England from seeds sent to the Chelsea Botanic Garden in 1826. It grows 1 ft. high, and produces its yellow flowers in June and July.

28. H. VÍRIDE *Tenore.* The green-*leaved* Helianthemum, *or Sun Rose.*

Identification. Tenor. Prod. Fl. Neap., p. 31.; Don's Mill., 1. p. 308.

Spec. Char., &c. Stem ascendent, glabrous. Leaves opposite, linear, with revolute margins, glabrous, green, somewhat mucronate, stipulate. Stipules awl-shaped, much smaller than the leaves. Peduncles racemose, beset with clammy hairs, as well as the calyx. (*Don's Mill.*, i. p. 308.) Introduced from Sicily in 1825, where it is a shrub 1 ft. in height, producing yellow flowers in June and July.

29. H. JUNIPÉRINUM *Lag.* The Juniper-like Helianthemum, *or Sun Rose.*

Identification. Lag. in. Litt., and Dec. Prod., 1. p. 275.; Don's Mill., 1. p. 308.
Synonymes. Cistus lǽvipes *Durand, Gouan Fl. Monsp.*, 263.?; Cístus mauritánicus *Thib. ined.*, *Barrel. Icon.*, t. 443.
Engraving. Barrel. Icon., t. 443.

Spec. Char. &c. Stem ascendent, branched. Leaves linear awl-shaped, ciliated, mucronate, flat, with rather revolute margins, opposite; upper leaves alternate. Stipules awl-shaped, upper ones longest. Peduncles racemose, and are, as well as the calyxes, clothed with clammy hairs. (*Don's Mill.*, i. p. 308.) A shrub 1 ft. in height, introduced from the south of Europe in 1800, and producing its yellow flowers from June to August.

30. H. BARRELIÈR*I* Tenore. Barrelier's Helianthemum, *or Sun Rose.*

Identification. Tenor. Prod. Fl. Neap., p. 31.; Don's Mill., 1. p. 308.
Engravings. Barrel. Icon. rar., 416.; Bot. Mag., t. 2371.

Spec. Char., &c. Stem erect. Branches villously pubescent. Leaves linear-oblong, narrowed at the base, pubescent, with revolute and ciliated margins, opposite; upper leaves alternate. Stipules linear awl-shaped, mucronate, erect. Peduncles racemose, few-flowered, and are, as well as the calyxes, beset with clammy hairs. (*Don's Mill.*, i. p. 308.) Found wild in Italy and Spain, where it grows 1 ft. high. It was introduced in 1820, and produces yellow flowers from June to August. It is rather tender.

31. H. *THYMIFÒLIUM* *Pers.* The Thyme-leaved Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 79.; Don's Mill., 1. p. 308.
Synonymes. Cistus *thymifòlius* *Lin. Sp.*, 743., *Smith's Fl. Græc.*, t. 500., *Barrel. Icon. rar.*, t. 444.; H. glutinòsum β, *Fl. Fr.* 4. p. 821.
Engravings. Swt. Cist., t. 102.; Sm. Fl. Gr., t. 500.; Barrel. Icon. rar., t. 444.; Fl. Fr., 4. p. 821., under H. glutinòsum β.

Spec. Char., &c. Stems procumbent. Branches pubescent. Leaves almost linear, very short, pubescent, opposite, upper ones alternate. Stipules mucronate, erect. Peduncles few-flowered, clothed with clammy hairs. (*Don's Mill.*, i. p. 308.) A native of Spain, which has been in cultivation in British gardens since 1658. It is a pretty little dwarf thyme-looking plant, and produces abundance of small bright yellow flowers from June to August; and it often ripens seeds. It is one of the most desirable of the *C*istàceæ for being kept in pots.

32. H. GLUTINÒSUM *Pers.* The clammy Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 79.; Don's Mill., 1. p. 308.
Synonyme. Cístus glutinòsus *Lin. Mant.*, 246.
Engravings. Swt. Cist., t. 83.; Barrel. Icon. rar., 512. t. 415.?; Cav. Icon., 2. t. 145. f. 2.

Spec. Char., &c. Stem ascendent. Branches clothed with clammy hairs, somewhat cinereous. Leaves almost linear, with revolute margins, villous, clammy, somewhat cinereous, opposite, upper ones alternate. Lower stipules minute, the rest long and loose. Peduncles and calyxes villous, clammy. Petals distinct. (*Don's Mill.*, i. p. 308.) Found within the south of France and Spain, and introduced in 1790. It is a slender plant, growing about 1 ft. in height, and producing very small pale yellow flowers from May to September. It is a distinct sort; and, though not very ornamental, it is valuable on account of its flowering the whole summer. Its flowers are very fugacious, the petals expanding in the morning, and dropping before the middle of the day.

§ vi. *Pseùdo-Cístus* Deċ. Prod., i. p. 276.

Derivation. From *pseudēs*, false, and *Cístus*; false cistus.

Sect. Char. Calyx of 5 sepals; outer sepals narrow, minute; inner ones 4-veined. Petals yellow, small, scarcely twice the length of the sepals. Style twisted at the base, and bent inwards at the apex, usually shorter than the stamens, rarely longer. Stigma capitate, 3-lobed. Capsule small. Seeds few, rather rufescent. Perennial herbs or subshrubs. Leaves stalked, feather-nerved, opposite, usually without stipules, rarely with stipules at the summits of the branches. Flowers secund, racemose, or panicled. Pedicels bracteate at the base, recurved before flowering, when in flower erect, but afterwards reflexed. Bracteas sessile, linear-lanceolate. (*Don's Mill.*, i. p. 308.) Evergreen undershrubs, bushes, or trailers, of the smallest size.

33. H. MO'LLE *Pers.* The soft-*leaved* Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 76.; Don's Mill., 1. p. 308.
Synonymes. Cístus móllis *Cav. Icon.*, 3. p. 31. t. 262. f. 2.
Engravings. Cav. Icon., t. 262. f. 2.

Spec. Char., &c. Suffruticose. Branches almost simple, pilose. Leaves roundish-ovate, obtuse, stalked, hairy, tomentose on both surfaces, soft. Racemes simple, and are, as well as the calyxes, hairy, tomentose, cinereous. (*Don's Mill.*, i. p. 308.) A native of Spain, whence it was introduced in 1817; grows 1 ft. high, and produces its yellow flowers from June to August.

34. H. ORIGANIFO'LIUM *Pers.* The Marjoram-*leaved* Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 76.; Don's Mill., 1. p. 308.
Synonymes. Cístus origanifòlius *Lam. Dict.*, 2. p. 20., *Cav. Icon.*, 3. p. 31. t. 262. f. 1.
Engraving. Cav. Icon., 3. t. 262. f. 1.

Spec. Char., &c. Stem suffruticose, di-tri-chotomous. Leaves stalked, ovate, pilose on both surfaces. Racemes short, terminal. Petals scarcely longer than the calyx. (*Don's Mill.*, i. p. 308.) A trailer, a native of Spain, whence it was introduced in 1795. The flowers are exceedingly small; but they are produced in abundance in June and July.

35. H. DICHO'TOMUM *Dunal.* The dichotomous-*branched* Helianthemum, *or Sun Rose.*

Identification. Dunal ined., and Dec. Prod., 1. p. 276.; Don's Mill., 1. p. 308.
Synonyme. Cístus dichótomus *Cav. Icon.*, 33. p. 2. t. 263. f. 1.
Engraving. Cav. Icon., 3. p. 32. t. 263. f. 1.

Spec. Char., &c. Suffruticose. Branches dichotomous, smoothish. Leaves minute, ovate, acute, glabrous, with revolute margins, on short footstalks. Racemes slender, few-flowered. (*Don's Mill.*, i. p. 308.) A native of Spain, whence it was introduced in 1826. It is a neat little prostrate shrub, with small leaves, having the appearance of those of *Thỳmus* Piperélla; and exceedingly small flowers, hardly the size of those of Spérgula nodòsa, but of a deep yellow. They appear in the beginning of June, and continue till the end of August.

36. H. ŒLA'NDICUM *Dec.* The Œland Helianthemum, *or Sun Rose.*

Identification. Dec. Fl. Fr., 4. p. 817.; Don's Mill., 1. p. 308.
Synonymes. Cístus œlándicus *Lin. Sp.*, 741.; Chamæcístus, ii., *Clus. Hist.*, p. 73. ic.
Engraving. Swt. Cist., t. 85.

Spec. Char., &c. Stem suffruticose, procumbent, branched. Leaves lanceolate-elliptical, bluntish, green on both surfaces, usually glabrous, sometimes ciliated, stalked; upper leaves sessile. Racemes simple, few-flowered.

Calyx somewhat globose-ovate. (*Don's Mill.*, i. p. 308.) Found in the Alps of France, Switzerland, and Austria; introduced in 1816; and, in our gardens, a low trailing shrub, producing yellow flowers from June to August. It is nearly related to H. alpéstre, but has narrower leaves and smaller flowers, and is of weaker growth. Plants were in the Chelsea Botanic Garden in 1828.

37. H. PULCHE'LLUM *Swt.* The neat Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 74.; Don's Mill., 1. p. 308.
Synonyme. H. alpéstre *Spreng. Syst.*, 2. p. 590.
Engraving. Swt. Cist., t. 74.

Spec. Char., &c. Stem suffruticose, procumbent, branched. Branches clothed with hoary tomentum. Leaves roundish or ovate, obtuse, upper surface green, beset with hispid hairs; under surface clothed with hoary tomentum, with the margins a little revolute. Racemes simple. Calyxes pilose, hoary. Petals imbricate. (*Don's Mill.*, i. p. 308.) A native of Germany, introduced in 1820, and producing its yellow flowers from June to August. A neat little prostrate shrub, hardy, and of the easiest culture. Plants were in the Roehampton Nursery in 1828.

38. H. ALPE'STRE *Dunal.* The Alpine Helianthemum, *or Sun Rose.*

Identification. Dunal ined., and Dec. Prod., 1. p. 276.; Don's Mill., 1. p. 308.
Synonymes. Cístus alpéstris *Crantz Austr.*, p. 103. t. 6. f. 1., *Wahl. Helv.*, p. 103.; Cístus œlándicus *Jacq. Austr.*, t. 399.
Engravings. Crantz Austr., t. 103. t. 6. f. 1.; Jacq. Austr., t. 399.
Varieties. De Candolle records *H. a. glabràtum*, *H. a. clongàtum*, and *H. a. canéscens.*

Spec. Char., &c. Stem suffruticose, procumbent, branched. Branches pilosely hairy. Leaves greenish on both surfaces, oblong-elliptical, rather glabrous, or with hairs in fascicles, stalked; upper leaves almost sessile. Pedicels and calyxes pilosely hairy. Hairs cinereous. (*Don's Mill.*, i. p. 308.) A native of Germany, Switzerland, France, and Italy, on rocks. It was introduced into England in 1818, and produces its yellow flowers, large for the size of the leaves, in July and August. It is an elegant little plant, and quite hardy. It was in Mr. Colvill's Nursery, Chelsea, in 1824.

39. H. PENICILLA'TUM *Thib.* The pencilled Helianthemum, *or Sun Rose.*

Identification. Thib. ined., and Dec. Prod., 1. p. 277.; Don's Mill., 1. p. 309.
Synonymes. Cístus echiöídes *Lam. Dict.*, 2. p. 21.; Cístus ánglicus *Lin. Mant.*, 245.?

Spec. Char., &c. Suffruticose. Branches procumbent, long, hispid. Leaves green, with the leaves on both surfaces hispid, as well as the margins; lower leaves stalked, ovate, smaller; upper ones linear-oblong, almost sessile. Racemes simple, and are, as well as the calyxes, hispid. Flowers minute. (*Don's Mill.*, i. p. 309.) A native of France and Spain, and introduced in 1826. It is a trailing plant, with the habit of Echinospérmum Láppula. Introduced in 1826, and producing its yellow flowers from June to August.

40. H. OBOVA'TUM *Dunal.* The obovate-*leaved* Helianthemum, *or Sun Rose.*

Identification. Dunal ined., and Dec. Prod., 1. p. 277.; Don's Mill., 1. p. 309.
Synonymes. Cístus itálicus *Lin. Sp.*, 740.

Spec. Char., &c. Suffruticose. Branches spreading, somewhat dichotomous, clothed with cinereous tomentum towards the apex. Leaves obovate, or oblong-obtuse, green on both surfaces, ciliated, pilosely strigose; lower leaves minute. Racemes simple, 3-flowered. Bracteas green. Calyxes pilose, cinereous. (*Don's Mill.*, i. p. 309.) Found in Spain, near Aranjuez, where it produces its yellow flowers in June and July. It was introduced in 1826; and, in British gardens, is a trailing plant, about 1 ft. in height.

41. H. ITA'LICUM *Pers.* The Italian Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 76.; Don's Mill., 1. p. 309.
Synonymes. Cístus itálicus *Lin. Sp.*, 740.; Cístus *marifòlius Bieb. Fl. Taur. Cauc.*, 2. p. 8.
Engraving. Barrel. Icon. rar., 510. t. 366.

Varieties. De Candolle distinguishes three forms of this species, viz. *H. i. strigòsum*, *H. i. candidissimum*, and *H. i. álbidum.*

Spec. Char., &c. Suffruticose. Branches simple, erect, long, pilosely tomentose. Leaves pilosely hispid; hairs strigose, appressed; lower leaves ovate, smaller; upper ones lanceolate, oblong or oblong-linear. Racemes simple, and are, as well as the calyxes, pilosely hispid, canescent. (*Don's Mill.*, i. p. 309.) A native of the Mediterranean, on dry hilly surfaces. Introduced in 1799, and producing its yellow flowers from July to September. It is a glaucous-looking trailing plant, seldom exceeding 1 ft. in height.

42. H. VINEAˋLE *Pers.* The Vineyard Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 77.; Don's Mill., 1. p. 309.
Synonyme. Cístus vineàlis *Willd. Sp.*, 2. p. 1195.
Engraving. Swt. Cist., t. 77.

Spec. Char., &c. Suffruticose, procumbent. Branches ascendent, pilosely tomentose, canescent. Leaves ovate-oblong; upper surface green, strigosely pilose, under surface tomentose, hoary. Racemes simple, few-flowered, and are, as well as the calyxes, pilosely tomentose, canescent. (*Don's Mill.*, i. p. 309.) A native of the south of Germany, Switzerland, France, and Spain; and introduced in 1817. It is a trailing plant, growing to about 1 ft. in height, and producing its pale yellow flowers in June and July. Sweet says that it is covered with flowers during a great part of the summer. After flowering, most of its leaves become quite silvery on both sides. It requires very little protection. Plants were in the Chelsea Botanic Garden, raised from seeds received from Germany, in 1828.

43. H. CAˋNUM *Dunal.* The hoary Helianthemum, *or Sun Rose.*

Identification. Dunal ined., and Dec. Prod., 1. p. 277; Don's Mill., 1. p. 309.
Synonymes. Cístus cànus *Lin. Sp.*, 740.; Chamæcistus, iii., *Clus. Hist.*, p. 74.
Engravings. Swt. Cist., t. 56.; Jacq. Aust., t. 277.; All. Ped., No. 1664. t. 45.

Spec. Char., &c. Stem suffruticose, procumbent, branched, ascendent, pilosely tomentose, hoary. Leaves obovate, ovate, ovate-oblong, or elliptical, pilose; upper surface green, under surface somewhat tomentose, hoary. Racemes simple. Pedicels and calyxes pilose, canescent. Petals distinct. (*Don's Mill.*, i. p. 309.) Found wild in the south of France and Germany, and probably also in Britain. It is a procumbent shrub, which has been cultivated in British gardens since 1772, and produces its yellow flowers in June and July. It is nearly related to H. alpéstre, and H. vineàle; and, according to Sweet, is sometimes mistaken for H. *m*arifòlium. Plants were in Colvill's Nursery, at Chelsea, in 1827.

44. H. MARIFOˋLIUM *Dec.* The Marum-leaved Helianthemum, *or Sun Rose.*

Identification. Dec. Fl. Fr., 4. p. 817.; Don's Mill., 1. p. 309.
Synonymes. Cístus *m*arifòlius *Lin. Sp.*, 741., but not of Bieb. Fl. Taur. Cauc., *Barrel. Icon. rar.*, 521. t. 441.
Engraving. Barrel. Icon. rar., 521. t. 441.

Spec. Char., &c. Suffruticose, procumbent. Leaves without stipules, stalked, ovate-cordate, or ovate, acutish; upper surface green, pilose, under surface hoary. Racemes solitary, simple, few-flowered, terminal. (*Don's Mill.*, i. p. 309.) Found wild in the south of France, and in Spain and Italy; and introduced in 1817. It is a trailing plant, seldom exceeding 1 ft. in height, and producing its yellow flowers in June and July.

45. H. CRASSIFOˋLIUM *Pers.* The thick-leaved Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 77.; Don's Mill., 1. p. 309.
Synonymes. Cístus glaúcus *Desf. Atl.*, 1. p. 418., but not of Cav.; H. *Séxte* Lag. in Litt.

Spec. Char., &c. Stem suffruticose, erect, rather glabrous. Leaves somewhat fleshy, on short footstalks; lower leaves ovate, acute, without stipules; upper ones oblong-linear, stipulate. Racemes short, rather umbellate. Calyxes pilose at the base. (*Don's Mill.*, i. p. 309.) Found wild in Barbary and Spain, and introduced into England in 1818. It grows to 1 ft. in height, and produces its yellow flowers from May to July. It was called H. *Séxte*, on account of its being found in Valentia, where it is called *sexte* by the common people.

46. H. PANICULAˋTUM *Dunal.* The panicled-*flowered* Helianthemum, *or Sun Rose.*

Identification. Dunal. ined., and Dec. Prod., 1. p. 278.
Synonymes. Cístus *m*arifòlius *Herb. Thib.*; Cístus nummulàrius var. *Lag. in Litt.*; H. sp. nòva *Schouw, in Litt.*

Spec. Char., &c. Suffruticose, procumbent. Branches ascendent and erect; floriferous branches long; upper part stipulate. Leaves stalked, ovate, bluntish, rarely roundish; upper surface green, under surface hoary. Racemes opposite and ternary; panicled. (*Don's Mill.*, i. p. 309.) A native of the mountains of Spain and Sicily, and introduced here in 1826. It is a procumbent plant, with very small flowers of a yellow colour, which are produced in abundance from June to August.

§ vii. *Euheliánthemum* Dec. Prod., i. p. 278.

Derivation. From *eus*, genuine, *hēlios*, the sun, and *anthemon*, a flower; that is to say, genuine species of helianthemum.

Sect. Char. Calyx of 5 sepals, rather twisted at the top before expansion;

outer sepals usually spreading, much smaller than the inner ones, which are usually 2- or 4-ribbed, furrowed, with scarious margins, with the inner surface shining, and with the angles generally pilose. Petals 2, 3, or 4 times longer than the calyx. Stamens numerous. Style bent at the base, but somewhat club-shaped at the apex. Stigma simple. Capsule covered by the calyx, 3-valved, 1-celled, opening at the apex. Seeds few, convex on the outside, and angular on the inside. Subshrubs, with the stems branched from the base; branches numerous, erect or procumbent, but generally ascendent. Leaves opposite, on short footstalks; lower ones smallest, usually with revolute margins, stipulate. Stipules linear-lanceolate. Racemes terminal, secund, simple, curved backwards before flowering; after flowering erect, elongated. Pedicels laterally bracteate at the base, drooping before flowering; when in flower erect, after flowering recurved or reflexed. (*Don's Mill.*, i. p. 310.) Evergreen undershrubs, bushes, and trailers, of the smallest size; natives of Britain, and the southern part of the European continent. Many of the sorts are hybrids originated in British gardens.

A. *Petals yellow.*

47. H. LAVANDULÆFO`LIUM *Dec.* The Lavender-leaved Helianthemum, *or Sun Rose.*

Identification. Dec. Fl. Fr., 4. p. 820.; Don's Mill., 1. p. 310.
Synonyme. Cístus lavandulæfòlius *Lam. Dict.*, 2. p. 25.
Engraving. Barrel. Icon., t. 288.

Varieties. De Candolle notices *H. l. syrìacum*, the Cístus syrìacus of Jacquin; and Persoon records *H. l. Thibaúdi*, the Cístus racemòsus of Cavanilles.

Spec. Char., &c. Stem suffruticose, erect, branched. Branches long, terete, canescent. Leaves oblong-linear, with revolute margins; under surface tomentose, hoary; younger leaves canescent on both surfaces. Stipules and bracteas linear, acute, ciliated. Racemes 1—3-flowered, terminal. Flowers crowded. Calyxes glaucous. Sepals ciliated, outer ones minute; these become reflexed after flowering: inner sepals 2-nerved, oblique, acute. (*Don's Mill.*, i. p. 310.) A bush about 1 ft. in height, a native of the south of France, and found also in Barbary, Spain, and Syria, in dry places; producing its yellow flowers in June and July. It was introduced into England in 1739, and, probably, is now lost, or confounded with some other sort.

48. H. STŒCHADIFO`LIUM *Pers.* The French-Lavender-leaved Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 79. Don's Mill., 1. p 310.
Synonyme. Cístus stœchadifòlius *Brot. Fl. Lus.*, 2. p. 270.

Spec. Char. &c. Stem erect. Branches hoary, tomentose. Leaves oblong-linear, bluntish, somewhat tomentose on both surfaces; under surface hoary, upper surface greenish grey, with revolute margins. Stipules rather villous, linear-lanceolate. Racemes revolute before flowering. Flowers crowded. Calyxes villous. Outer sepals ciliated, green, inner ones acuminated, hoary. (*Don's Mill.*, i. p. 310.) A native of Spain and Corsica. An upright bush, introduced in 1816, and producing its yellow flowers in June and July.

49. H. CRO`CEUM *Pers.* The Saffron-coloured-*flowered* Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 79.; Don's Mill., 1. p. 310.
Synonyme. Cístus cròceus *Desf. Fl. Atl.*, 1. p. 422. t. 110.
Engravings. Swt. Cist., t. 53.; Desf. Fl. Atl., 1. t. 110.

Varieties. De Candolle (*Prod.*, i. p. 279.) records three forms of this species: one with the stipules longer than the footstalks of the leaves; another, with the stipules setaceous, shorter than the footstalks of the leaves; and the third with procumbent branches, shorter leaves, and racemes few-flowered.

Spec. Char., &c. Stem shrubby, branched, somewhat procumbent. Branches simple, erect, hoary-tomentose. Leaves rather tomentose; under surface canescent, upper surface glaucous with revolute margins; lower leaves almost round; middle ones elliptical, obtuse; upper ones, lanceolate, acutish. Stipules and bracteas erect, linear, oblong, villous, rather greenish. Calyxes yellowish-glaucous, minutely pubescent. (*Don's Mill.*, i. p. 310.) A procumbent plant, with large dark yellow flowers, found in Spain and Barbary, and, according to Sweet, cultivated in the Chelsea Botanic Garden in 1826, where, growing on rockwork, it covered more than a yard in diameter, and made a grand appearance in June and July, when it was covered with flowers. It is one of the most ornamental species of the genus, and no collection ought to be without it, if it were only for planting out in borders in the summer season.

50. H. Anderso`ni Swt. Anderson's Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 89.; Don's Mill., 1. p. 310.
Engraving. Swt. Cist., t. 89.

Spec. Char., &c. Stem suffruticose, procumbent, branched. Branches ascending, canescently tomentose. Leaves oblong-lanceolate, acutish, rather tomentose, grey above, and canescent beneath, with the margins a little revolute. Stipules linear, awl-shaped, ciliated, a little longer than the petioles. Calyx tomentose. Petals imbricate. (*Don's Mill.*, i. p. 310.) A pretty and curious plant, produced from the seed of H. cròceum, that was fertilised by the pollen of H. pulveruléntum, in the Chelsea Botanic Garden, in the year 1828. The seeds were self-sown in that year; in the year following, the plants produced flowers, from May to the end of November. "The flowers were very variable, some being of a bright yellow, and others, on the same plant, and sometimes on the same branch, of a pale straw colour." (*Sweet.*) It is a remarkably fast grower, an abundant flowerer, seeds freely, and is quite hardy. Sweet says, "We have named it in compliment to our respected friend Mr. William Anderson, the curator of the garden, to whom we are obliged for the opportunity of making drawings of many rare species, which we have not seen in any other collection."

51. H. nudicau´le *Dunal.* The naked-stemmed Helianthemum, *or Sun Rose.*

Identification. Dunal. ined., and Dec. Prod., 1. p. 279.; Don's Mill., 1. p. 310.

Spec. Char., &c. Stem shrubby, branched. Branches smooth at bottom, but hoary-villous at top. Leaves oblong-lanceolate, with revolute margins, tomentose on both surfaces; under surface hoary, upper surface yellowish green. Stipules linear, longer than the petioles. Calyxes profoundly sulcate, hardly pubescent, with elevated pilose nerves. (*Don's Mill.*, i. p. 310.) A native of Spain, and found on mountains in the kingdom of Valentia. It was introduced in 1826, producing its yellow flowers in June and July. De Candolle doubts whether it is not only a variety of H. cròceum.

52. H. glau´cum *Pers.* The glaucous Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 78.; Dec. Prod., 1. p. 279.; Don's Mill., 1. p. 311.
Synonymes. Cistus glaúcus *Cav. Icon.*, 3. p. 31. t. 261., but not of Desf.
Engraving. Swt. Cist., t. 111.

Varieties. Two forms of this species are mentioned by De Candolle, viz.: *H. g. acutiúsculum*, the upper leaves of which are oblong, and rather acuminated, with the upper surface glaucescent; and *H. g. obtutiúsculum*, the upper leaves of which are oblong elliptical, bluntish, the upper surface roughish and green.

Spec. Char., &c. Stem suffruticose, branched. Branches ascendant, hoary-tomentose, hispid at the top. Leaves ciliated on their margins, scarcely revolute, tomentose on both surfaces; under surface hoary, upper surface greenish glaucous. Lower leaves round, the rest elliptic or lanceolate-oblong. Stipules and bracteas pubescent, green. Pedicels and calyxes beset with white hairs. (*Don's Mill.*, i. p. 311.) A suberect glaucous plant, from Spain and Italy, in 1815; and producing its small pale yellow flowers from June till August. It is a very desirable plant to keep in pots, for turning out in the borders, or on rockwork, in spring, as it is rather tender, and liable to damp off in the free soil, unless the situation is very dry and warm. Plants were in the garden of Robert Barclay, Esq., at Bury Hill, near Dorking, in 1829.

53. H. tomento`sum *Dunal.* The tomentose Helianthemum, *or Sun Rose.*

Identification. Dunal ined., and Dec. Prod., 1. p. 279.; Don's Mill., 1. p. 311.; Smith's Eng. Bot., 2208.; ? Scop. Carn., t. 24.
Engraving. ? Scop. Carn., t. 24.

Spec. Char., &c. Stem suffruticose, branched. Branches elongated, ascendent, somewhat canescent. Leaves lanceolate-oblong, usually with revolute margins; under surface hoary-tomentose, upper surface smoothish, green. Calyxes furrowed, with elevated pilose nerves. (*Don's Mill.*, i. p. 311.) A trailing plant, 1 ft. in height, found on the mountains of Scotland, and also in Spain and France, producing its yellow flowers, with imbricate petals, in July.

54. H. BARBA`TUM *Pers.* The bearded-*racemed* Helianthemum, *or Sun-Rose.*

Identification. Pers. Ench., 2. p. 79.; Swt. Cist., t. 73.; Don's Mill., 1. p. 311.
Synonyme. Cìstus barbàtus *Lam. Dict.*, 2. p. 24.
Engraving. Swt. Cist., t. 73.

Spec. Char., &c. Stem suffruticose, erect, much branched. Branches clothed with fascicled hairs. Leaves hairy, green on both surfaces; lower ones roundish-ovate, upper ones elliptical. Stipules oblong, ciliated, hairy, longer than the footstalks of the leaves. Racemes long, hairy, bearded, many-flowered. Calyxes warted, hairy. Petals crenulated, imbricate at the base. (*Don's Mill.*, i. p. 311.) A native of the south of Europe, producing its yellow flowers in June and July. It is an upright-growing shrub, and was introduced in 1820. It is a very distinct species, a free grower, and requires no protection. Plants were in the Chelsea Botanic Garden in 1828.

55 H. LEPTOPHY'LLUM *Dunal.* The slender-leaved Helianthemum, *or Sun Rose.*

Identification. Dunal. ined., Dec. Prod., 1. p. 279.; Don's Mill., 1. p. 311.
Synonymes. Cìstus angustifòlius *Lag.*; *C.* stœchadifòlius *Hort.*
Engraving. Swt. Cist., t. 50.

Spec. Char., &c. Stem suffruticose, woody, rather procumbent, branched. Branches ascendent, rather tomentose, greyish. Leaves narrow, oblong-linear, tapering into the short footstalks, with revolute margins; under surface covered with short cinereous tomentum; upper surface smoothish, green. Stipules awl-shaped, pilose, scarcely longer than the footstalks. Racemes long. Calyxes covered with long hairs. (*Don's Mill.*, i. p. 311.) A trailing plant, from Spain, in 1818, producing yellow flowers in June and July. It is a vigorous-growing plant, very distinct in its appearance, and very hardy. The petals of the flowers are large, and of a fine dark yellow. Plants were in the Chelsea Botanic Garden in 1826.

56. H. ACUMINA`TUM *Pers.* The acuminated Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 79.; Don's Mill., 1. p. 311.
Synonymes. Cìstus serpyllifòlius *Balb. ined.*; Cìstus acuminàtus *Viv. Fragm.*, 13. t. 14. f. 1.

Spec. Char., &c. Branches erect, pilose at the base and at the apex, middle naked. Leaves on long footstalks, oblong, with revolute margins, green on both surfaces, pilose; under surface rather tomentose. Stipules smoothish, linear, longer than the footstalks of the leaves. Racemes rather hairy, few-flowered, loose. Calyxes smooth, shining, transparent. (*Don's Mill.*, i. p. 311.) A native of Nice, and cultivated in British gardens in 1820: it grows to 1 ft. in height, and produces its yellow flowers in June and July.

57. H. SERPYLLIFO`LIUM *Mill.* The Wild-Thyme-leaved Helianthemum, *or Sun Rose.*

Identification. Mill. Dict. No. 8.; Swt. Cist., t. 60.; Don's Mill., 1. p. 311.
Synonyme. Cìstus serpyllifòlius *Lin. Sp.*, 743.
Engraving. Swt. Cist., t. 60.

Spec. Char., &c. Stem suffruticose. Branches ascendent, glabrous at the base, and pilose at the apex. Leaves oblong-elliptical, with revolute margins; under surface hoary-tomentose; upper surface intensely green, shining, at first rather pilose, afterwards almost smooth. Stipules and bracteas green, ciliated. Calyxes canescent, with inconspicuous down, and with the nerves sparingly pilose. (*Don's Mill.*, i. p. 311.) A trailing shrub, with large yellow flowers, the petals of which are distinct. It is found on the Alps of Styria and Austria, as well as on the mountains of Spain. It was introduced into our gardens in 1731, and continues in flower from May to September. It was found wild in Somersetshire, by Mr. Sweet and some others, in 1826, in which year there were plants of it in Mr. Colvill's Nursery, Chelsea.

58. H. VULGA`RE *Gært.* The common Helianthemum, *or Sun Rose.*

Identification. Gært. Fruct., 1. p. 371. t. 76.; Don's Mill., 1. p. 311.
Synonyme. Cìstus Heliánthemum *Lin. Sp.*, 1. p. 744., *Fl. Dan.*, t. 101., *Smith's Engl. Bot.*, 1321., *Curt. Fl. Lond.*, fasc. 5. t. 36.

Varieties. There is a very handsome double-flowered variety, with pale yellow flowers; and another, called Lee's new double yellow, with dark yellow flowers; both of which are in general cultivation in the nurseries. De Candolle also notices two forms of the species: one with tomentose pubescent branches, and stipules scarcely longer than the footstalks of the leaves; and another with branches glabrous at the base, but pubescent upwards, and the stipules twice or thrice the length of the petioles of the leaves.

Spec. Char., &c. Stem suffruticose, procumbent, branched, branches elongated. Leaves scarcely revolute at the margins; under surface cinereously hoary, upper surface green, pilose, somewhat ciliated; lower leaves somewhat orbicular, middle ones ovate-elliptical, upper ones oblong. Stipules oblong-linear, ciliated, longer than the footstalks of the leaves. Racemes loose. Pedicels and calyxes pilose. (*Don's Mill.*, i. p. 311.) The stamens, if touched during sunshine, spread slowly, and lie down upon the petals. (*Smith.*) Native of dry and hilly pastures throughout Europe, and common in Britain. It was first recorded under the name of Heliánthemum vulgàre by Ray, who says that the flowers are very seldom white. Sir J. E. Smith says, "It is a variable species, but less so than authors make it." (*Eng. Fl.*, iii. p. 26.) It is a trailing shrub, flowering from May till September. The double-flowered varieties ought to be in every collection.

♄ 59. H. SURREJAˋNUM *Mill.* The Surrey Helianthemum, *or Sun Rose.*

Identification. Mill. Dict., No. 15.; Swt. Cist., t. 28.; Don's Mill., 1. p. 311.
Synonyme. Cístus surrejànus *Lin. Sp.*, 743., *Smith's Eng. Bot.*
Engravings. Dill. Elth., 177. t. 145. f. 174.; Swt. Cist., t. 28.; Eng. Bot., t. 2207.

Spec. Char., &c. Stem suffruticose, procumbent. Leaves ovate-oblong, rather pilose. Racemes many-flowered, terminal. Petals narrow, lanceolate, jagged. (*Don's Mill.*, i. p. 311.) Found wild in Surrey, near Croydon. It is a procumbent shrub, with yellow flowers, the petals of which are distinct, and the calyxes pilose. It flowers from July to October. Plants were in the garden of Mrs. Dickson, of Croydon, in Surrey, in 1826.

♄ 60. H. OVAˋTUM *Dunal.* The ovate-*leaved* Helianthemum, *or Sun Rose.*

Identification. Dunal ined., Dec. Prod., 1. p. 280.; Don's Mill., 1. p. 311.
Synonyme. Cístus ovàtus *Viv. Frag.*, 1. p. 6.
Engraving. Viv. Frag., 1. t. 8. f. 2.

Spec. Char., &c. Stem suffruticose, procumbent, much branched. Branches villous. Leaves elliptic-lanceolate, tapering into the footstalks, bluntish, silky-villous on both surfaces, ciliated. Stipules somewhat longer than the footstalks of the leaves, villously ciliated. Peduncles 1—3-flowered, terminal. Calyxes rather villous. (*Don's Mill.*, i. p. 311.) A trailing plant, from the mountains between Viterbo and Ronciglione, and in the Alps about Geneva. Introduced in 1818, and producing its yellow flowers from June to August.

♄ 61. H. GRANDIFLOˋRUM *Dec.* The large-flowered Helianthemum, *or Sun Rose.*

Identification. Dec. Fl. Fr., 4. p. 821.; Don's Mill., 1. p. 311.
Synonyme. Cístus grandiflòrus *Scop. Carn.*, ed. 2. No. 648. t. 25.
Engravings. Swt. Cist., t. 69.; Scop. Carn., ed. 2. t. 25.; and our *fig.* 73.

Spec. Char., &c. Stem suffruticose, ascending. Branches hairy. Upper leaves flattish, oblong, rather pilose; upper surface green, under surface sometimes pale cinereous. Stipules ciliated, rather longer than the footstalks of the leaves. Flowers large. Calyxes rather hairy. (*Don's Mill.*, i. p. 311.) A native of the Pyrenees, from which it was introduced in 1800. It bears a close resemblance to H. vulgàre, but is larger in all its parts; and its flowers, which appear from June to August, are considerably larger, and of a paler colour. It is quite as hardy as the indigenous sorts. Plants of it were in the Fulham Nursery in 1828.

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♄ 62. H. OBSCUˋRUM *Pers.* The obscure Helianthemum, *or Sun Rose.*

Identification. Pers. Syn., 2. p. 79.; Don's Mill., 1. p. 311.
Synonyme. H. obscùrum α *Dec. Flor. Fr.*, 6. p. 624.

Spec. Char., &c. Stem suffruticose, ascendent, much branched. Branches hairy. Leaves elliptical, hairy on both surfaces, greenish; upper ones elliptic. Stipules ciliated, longer than the footstalks. Racemes long. Calyxes hairy. (*Don's Mill.*, i. p. 311.) A native of Europe, in woods and dry wastes, and introduced into British gardens in 1816. It is hardly procumbent, forming a small roundish bush, about 1 ft. in height, and producing its pale yellow flowers, which are rather small, from May to August.

63. H. TAU´RICUM *Fisch.* The Taurian Helianthemum, *or Sun Rose.*

Identification. Fisch. MSS. Swt. Cist., t. 105.; Don's Mill., 1. p. 312.
Engraving. Swt. Cist., 105.

Spec. Char., &c. Stem suffruticose, much branched, procumbent. Branches procumbent, beset with long hairs. Leaves oblong-lanceolate, with rather revolute margins, pilose on both surfaces, green above and paler beneath. Stipules lanceolate-linear, ciliated, longer than the petiole. Flowers large. Calyx shining, rather hairy. Petals imbricate. (*Don's Mill.*, i. p. 312.) A very ornamental species, from Tauria, with large pale yellow flowers, which appear from May to October. Sweet says, "It has, most probably, been confused with H. grandiflòrum by many authors; but, when the plants are seen growing together, no two plants need appear more distinct: the present spreading flat on the ground, and extending its branches round to a great distance, and these being only slightly suffrutescent at the base; whereas H. grandiflòrum grows upright, or has its branches spreading and ascendent, forming a neat little bushy shrub." Plants of this species were in the Fulham Nursery in 1829.

64. H. LU`CIDUM *Horn.* The shining-*leaved* Helianthemum, *or Sun Rose.*

Identification. Horn. Cat. Hort. Hafn., p. 498.

Spec. Char., &c. Stem suffruticose, procumbent. Leaves stipulate, ovate, green, glossy, with revolute margins. (*Don's Mill.*, i. p. 312.) The native country of this sort is uncertain; but it is said to have been in cultivation in British gardens since 1826. The flowers are yellow, and produced in May and June.

65. H. NUMMULA`RIUM *Mill.* The Money-wort-*leaved* Helianthemum, *or Sun Rose.*

Identification. Mill. Dict., No. 11.; Swt. Cist., t. 80.; Don's Mill., 1. p. 312.
Synonymes. Cistus nummulàrius α *Lin. Sp.*, 743., not of Desf. and Cav.; H. obscùrum β nummulàrium *Dec. Flor. Fr.*, 6. p. 624.; H. angustifòlium of many botanic gardens.
Engraving. Swt. Cist., t. 80.

Spec. Char., &c. Stem suffruticose. Branches procumbent, hairy. Lower leaves orbicular, upper ones oblong-linear, hairy; under surface greenish cinereous. Stipules linear-oblong, twice the length of the footstalks of the leaves. Racemes and calyxes hairy. (*Don's Mill.*, i. p. 312.) A native of the south of France and of Italy, and strongly resembling H. vulgàre; from which, according to Sweet, it is readily distinguished by its broader and flatter leaves. It has been in cultivation since 1752, producing its bright yellow flowers from June to August.

66. H. ANGUSTIFO`LIUM *Pers.* The narrow-leaved Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 79.; Don's Mill., 1. p. 312.
Synonyme. Cistus angustifòlius *Jacq. Vind.*, 3. t. 53.
Engraving. Jacq. Vind., 3. t. 53.

Spec. Char., &c. Stem suffruticose, diffuse. Branches rather tomentose, cinereous. Leaves on short footstalks; upper ones linear-oblong, with revolute margins, acutish; under surface clothed with canescent tomentum, upper surface rather hispid. Stipules pilose, longer than the footstalks. Racemes loose. Calyxes pubescent, rather hairy; hairs deciduous. (*Don's Mill.*, i. p. 312.) In cultivation since 1800; and, according to De Candolle, probably the same as H. nummulàrium.

67. H. HI´RTUM *Pers.* The hairy Helianthemum, *or Sun Rose.*

Identification. Pers. Syn., 2. p. 79.; Swt. Cist., t. 109.; Dec. Prod., 1. p. 281.; Don's Mill., 1. p. 312.
Synonymes. Cistus hirtus *Lin. Sp.*, 744., *Smith's Fl. Græc.*, exclusive of synonyme of Barrelier, *Cav. Icon.*, 2. p. 37.
Engravings. Swt. Cist., t. 109.; Smith's Fl. Græc., t 501.; Cav. Icon., 2. t. 146.

Spec. Char., &c. Stem suffruticose, branched. Branches ascendent, numerous, tomentosely hairy, cinereous. Leaves ovate or oblong, with revolute margins; under surface canescent, upper surface greenish cinereous. Stipules narrow, rather longer than the footstalks of the leaves. Calyxes densely covered with white hairs. Petals obcordate, imbricate. (*Don's Mill.*, i. p. 312.) A native of Spain and of the south of France, and in cultivation in British gardens since 1759. It is a very distinct sort, readily distinguished by its large deep-yellow flowers, which appear in June and July, and by its very hairy leaves. Plants of it were in the Chelsea Botanic Garden in 1829.

Varieties. De Candolle mentions three forms of this species: *H. h. bæ'ticum*, *H. h. aúreum*, and *H. h. teretifòlium.*

68. H. LAGA'SCÆ *Dunal.* La Gasca's Helianthemum, *or Sun Rose.*

Indentification. Dunal. ined., and Dec. Prod., 1. p. 281.; Don's Mill., 1. p. 312.
Synonyme. H. hírtum var. *Lag. in Litt.*

Spec. Char., &c. Branches ascendent, tomentosely hairy, hoary. Leaves linear, obtuse, with very revolute margins, almost terete, rather hairy, greenish. Stipules flat, scarcely pilose, twice the length of the footstalks of the leaves. Pedicels hispid, whitish. Calyxes shining, furrowed. Nerves ciliated with white hairs. (*Don's Mill.*, i. p. 312.) A native of Spain, introduced into England in 1826, and so like the foregoing species as to be often considered a variety of it.

B. *Petals white, rose-coloured, red, pale sulphur-coloured, or variegated with these Colours.*

69. H. VIOLA'CEUM *Pers.* The Violet-coloured-*calyxed* Helianthemum, *or Sun Rose.*

Identification. Pers. Syn., 2. p. 78.; Don's Mill., 1. p. 312.
Synonyme. Cístus violàceus *Cav. Icon.*, 2. p. 38.
Engraving. Cav. Icon., 2. t. 147.

Spec. Char., &c. Stem erect or ascendent, much branched. Branches opposite; branchlets slender, tomentosely hairy, hoary. Leaves small, almost linear, obtuse, with revolute margins, somewhat tomentose on both surfaces; under surface canescent. Stipules minute, pilose. Racemes few-flowered, loose. Calyxes smooth, violaceous, nervedly furrowed. (*Don's Mill.*, i. p. 312.) A native of Spain, and in cultivation since 1826. The flowers are white, slightly tinged with violet, and they appear in June and July.

70. H. RACEMO'SUM *Dunal.* The racemose-*flowered* Helianthemum, *or Sun Rose.*

Identification. Dunal. ined., and Dec. Prod., 1. p. 281.; Don's Mill., 1. p. 312.
Synonymes. Cístus racemòsus *Lin. Mant.*, 76.?, *Lam. Dict.*, 2. p. 25., *Vahl. Symb.*, 1. p. 39., *Willd. Sp.*, 2. p. 1208.
Engraving. Swt. Cist., t. 82.

Spec. Char., &c. Stem shrubby, branched. Branches erect, terete, hoary, tomentose. Leaves on short footstalks, narrow-linear, or linear-lanceolate, with revolute margins; under surface hoary, upper surface greenish, shining. Stipules awl-shaped, longer than the footstalks of the leaves. Pedicels hoary. Calyxes nervously furrowed, brownish violet. (*Don's Mill.*, i. p. 312.) A native of Spain, Barbary, and Teneriffe, and in cultivation in the Bristol Nursery in 1828. It is a very beautiful species, with large white flowers, having imbricate crenulate petals, and the sepals marked with red or violet. It is readily distinguished, Sweet observes, from all the others of its section, by its upright growth, glossy leaves, and the red veins of its sepals. Its flowers are produced nearly the whole summer, and it requires very little protection during the winter.

71. H. FARINO'SUM *Swt.* The mealy-*leaved* Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., p. 18.; Don's Mill., 1. p. 312.
Synonyme. H. racemòsum β farinòsum *Dec. Prod.*, 1. p. 281.

Spec. Char., &c. Stem shrubby, erect, branched, tomentosely hoary. Leaves on short footstalks, linear, or lanceolate-linear, with revolute margins, hoary and powdered on both surfaces. Stipules awl-shaped, longer than the footstalks of the leaves. Calyx powdery, as well as beset with very short hairs. (*Don's Mill.*, i. p. 312.) A native of Spain, with white flowers in June and July. It is said to have been cultivated in 1820. De Candolle considers it a variety of H. racemòsum.

72. H. STRI'CTUM *Pers.* The straight-*branched* Helianthemum, or *Sun Rose.*

Identification. Pers. Ench., 2. p. 79.; Don's Mill., 1. p. 312.
Synonyme. Cístus stríctus, *Cav. Icon.*, 3. p. 32.
Engraving. Cav. Icon., 3. t. 263. f. 2.

Spec. Char., &c. Stem suffruticose, erect, branched. Branches straight, hoary-tomentose. Leaves almost sessile, very narrow, linear awl-shaped, with revolute margins, canescent. Stipules linear, setaceous. Calyxes pilose, nervously-striated, yellowish, smoothish. (*Don's Mill.*, i. p. 312.) A native of Spain, and in cultivation since 1820, producing white flowers in June and July.

73. H. PILO'SUM *Pers.* The pilose Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 79.; Dec. Prod., 1. p. 282.; Don's Mill., 1. p. 312.
Synonymes. Cístus pilòsus *Lin. Sp.*, 744. α.?; Chamæcistus, iv., *Clus. Hist.*, 1. p. 74.
Engraving. Swt. Cist., t. 49.

Varieties. De Candolle has two forms of this species: one with linear leaves, hoary; and the other with linear leaves, oblong and shining.

Spec. Char., &c. Stem suffruticose, branched. Branches erectish. Leaves linear or linear-oblong, hoary on both surfaces, and bristly at the apex. Stipules awl-shaped. Calyxes rather pilose, nervously striated. (*Don's Mill.*, i. p. 312.) A native of Spain and the south of France, and in cultivation since 1731; producing its white flowers from May to July. According to Sweet, it is nearly related to H. lineàre, and also to H. apennìnum: but it differs from the former in having whiter leaves, and being more hairy; and from both, by its imbricate paper-white petals. Plants of it were in the Fulham Nursery in 1826.

74. H. LINEA`RE *Pers.* The linear-*leaved* Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 78.; Don's Mill., 1. p. 312.
Synonymes. Cístus lineàris *Cav. Icon.*, 3. p. 8.; Cistus pilòsus *Dec. Fl. Fr.*, 5. p. 823.?
Engraving. Swt. Cist., t. 48.

Spec. Char., &c. Stem suffruticose. Branches elongated, ascendent, rather hoary, tomentose. Leaves linear, greenish hoary, with revolute margins. Stipules linear awl-shaped. Racemes loose, twiggy, few-flowered. Calyxes striated, glabrous, with the nerves somewhat violaceous. Sepals acute. (*Don's Mill.*, i. p. 312.) A native of Spain and the south of France; in cultivation since 1817; and producing white flowers from June to August. It requires a little protection during winter.

75. H. VIRGA`TUM *Pers.* The twiggy Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., p. 79.; Don's Mill., 1. p. 313.

Varieties. De Candolle mentions two forms of this species: *H. v. albiflòrum*, in which the petals are white; and *H. v. ròseum*, in which they are pale rose-coloured.

Spec. Char., &c. Stem suffruticose, with twiggy, hoary, ascending or erect branches. Leaves linear, hoary on the under surface, with revolute margins. Stipules linear awl-shaped. Calyxes hoary, powdery, pubescent. (*Don's Mill.*, i. p. 313.) A native of Barbary, and in cultivation since 1818. The flowers are of a pale rose colour, large in proportion to the leaves, and the petals have yellow spots at the base. The flowers appear from May to August. This is one of the most beautiful species of the section to which it belongs: it requires a little protection during winter, but grows and flowers freely during summer, and also ripens seeds. Plants of it were in the Epsom Nursery in 1828.

76. H. APENNI`NUM *Dec.* The Apennine Helianthemum, *or Sun Rose.*

Identification. Dec. Fl. Fr., 4. p. 824; Don's Mill., 1. p. 313.
Synonymes. Cístus apennìnus *Lin. Sp.*, 744.?, *Dill. Elth.*, 170.; Cístus híspidus β *Lam. Dict.*, 2. p. 26.
Engraving. Swt. Cist., t. 62.

Varieties. De Candolle records two forms of this species; one with leaves broad and flattish, andt other with leaves linear and narrow.

Spec. Char., &c. Stem suffruticose, branched. Branches spreading, hoary tomentose. Leaves stalked, oblong linear, with the margins scarcely revolute; under surface tomentose, upper surface glaucescent, but at length becoming smooth. Stipules awl-shaped, longer than the footstalks of the leaves. Calyxes covered with very short hairs, striated, cinereously glaucous, bluntish. (*Don's Mill.*, i. p. 313.) A native of Spain, France, Italy, and Germany, on dry hills and places exposed to the sun; and in cultivation in British gardens since 1731. The flowers are white, and the petals are distinct, and marked with yellow at their base. The plant is as hardy as the common species. It was in the Chelsea Botanic Garden in 1828.

77. H. HI'SPIDUM *Dunal.* The hispid-*herbaged* Helianthemum, *or Sun Rose.*

Identification. Dunal ined., and Dec. Prod., 1. p. 282.; Don's Mill., 1. p. 313.
Synonymes. Cistus híspidus *Lam.*, 2. p. 26.; *Brot. Fl. Lus.*, 2. p. 271.; Cistus pilòsus β *Gouan. Fl. Monsp.*, p. 265.; H. *majoranæfòlium* β *Dec. Fl. Fr. Suppl.*, p. 625.

Spec. Char., &c. Stem suffruticose, branched. Branches ascending, hoary-tomentose. Leaves stalked, oblong, bluntish, somewhat mucronate, with revolute margins; under surface hoary, upper surface roughish, greenish-glaucous. Calyxes covered with long hairs. (*Don's Mill.*, i. p. 313.) Native of the south of France, and in cultivation since 1816; producing its white flowers from May to July.

78. H. PULVERULE'NTUM *Dec.* The powdered-*leaved* Helianthemum, *or Sun Rose.*

Identification. Dec. Fl. Fr., 4. p. 823.; Don's Mill., 1. p. 313.
Synonymes. Cìstus pulverulèntus *Pour. Act. Toul.*, 3. p. 311.; Cìstus polifòlius *Lam. Dict.*, 2. p. 26., but not of Lin.
Engraving. Swt. Cist., t. 29.

Spec. Char., &c. Stem suffruticose, much branched, prostrate. Branches hoary-tomentose. Leaves oblong linear, with revolute margins, obtuse; under surface hoary, upper surface glaucous. Stipules subulate, ciliated, longer than the footstalks of the leaves. Calyxes hoary, minutely tomentose, pubescent. (*Don's Mill.*, i. p. 313.) A native of France, on sterile hills; and, according to Sweet, in cultivation in the Chelsea Botanic Garden in 1826. It has white flowers, about an inch broad, which appear in May and June; and, though they are not so showy as some of the other species, yet, as Sweet observes, they make a pleasing variety. It is nearly related to H. apennìnum.

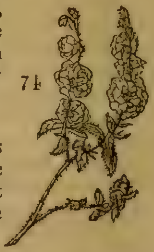
79. H. MACRA'NTHUM *Swt.* The large-flowered Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 103.; Don's Mill., 1. p. 313.
Engraving. Swt. Cist., t. 103.

Spec. Char. &c. Stem suffruticose. Branches procumbent, rather tomentose. Leaves flat, ovate oblong, acutish; smooth above, and densely tomentose beneath, pale cinereous. Stipules rather pilose, about equal to, or longer than, the petioles. Calyx striated, pilose. Petals distinct. (*Don's Mill.*, i. p. 313.) The native country of this species is uncertain; but, according to Sweet, it was in cultivation in the Hammersmith Nursery in 1828. The leaves are large and flat, and the flowers larger than any other in the section. The petals are of a cream-coloured white, distinct, spreading, and very slender at the base, where they are marked with yellow. The plant is as hardy as the common species. It was cultivated in the Hammersmith Nursery in 1828.

Variety.

H. m. 2 *múltiplex* Swt. Cist., t. 104., and our *fig.* 74., is a beautiful plant, not only on account of its fine double flowers, but of its habit of growth. It ought to be in every Cistacetum. Plants of it were in the Hammersmith Nursery in 1828.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80. H. RHODA'NTHUM *Dunal.* The red-flowered Helianthemum, *or Sun Rose.*

Identification. Dunal, ined., and Dec. Prod., 1. p. 282.; Don's Mill., p. 313.
Synonymes. Cìstus ròseus *Jacq. Hort. Vin.*, 3. p. 65.? Cìstus angustifòlius, formerly in the Royal Botanic Garden at Paris.; Cìstus pilulìferus *Thib. ined.*
Engraving. Swt. Cist., t. 7.

Varieties. De Candolle records three forms of this species: *H. r. oblongifòlium*, *H. r. subhirsùtum*, and *H. r. cárneum.*

Spec. Char., &c. Stem suffruticose, procumbent. Branches rather tomentose, and hoary. Leaves oblong, with revolute margins; under surface hoary-tomentose, upper surface greenish glaucous. Stipules awl-shaped, pilose, and bristly at the tip. Calyxes covered with short white tomentum. (*Don's Mill.*, i. p. 313.) A native of Spain, introduced in 1800, and, according to Sweet, in the Chelsea Botanic Garden in 1825. It is a very showy kind, with flowers of a bright red, inclining to crimson, which it produces in abundance, being quite hardy and of the easiest culture. Sweet says, "Our drawing was taken from a fine plant, growing luxuriantly, with many other handsome species, on the rockwork of the Chelsea Botanic Garden, in June, 1825. Nothing could make a more brilliant appearance than the different habits of growth and beautiful flowers of various colours with which the plants on this rockwork were decked every day for about two months. H. rhodánthum," he adds, "also makes a handsome appearance when grown in pots."

We may observe, here, that the rockwork in the Chelsea Botanic Garden forms a sort of truncated cone, flattened on the sides, terminating in a small basin for water plants; and it suggests the idea that a helianthemum wall, constructed somewhat on the same plan as the strawberry wall of Mr. Byers (*Gard. Mag.*, vol. v. p. 438.), would be a very suitable manner of growing the species.

♣ 81. H. CANE´SCENS *Swt.* The canescent-*leaved* Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 51.; Don's Mill., 1. p. 313.
Engraving. Swt. Cist., t. 51.

Spec. Char., &c. Stem suffruticose, branched, diffuse. Branches ascending, rather tomentose, canescent. Leaves flat, or hardly revolute at the margins; under surface tomentosely hoary, upper surface greenish glaucous. Lower leaves ovate oblong, obtuse; upper ones lanceolate, acute. Stipules linear, ciliated, somewhat longer than the footstalks. Calyxes smoothish, but with the nerves pubescent. Petals imbricated. (*Don's Mill.*, i. p. 313.) A splendid plant, with reddish crimson flowers; the petals imbricated, and having a small orange spot at the base of each. Its native country is uncertain, but it was in cultivation in the Fulham Nursery in 1826. Sweet considers it as having the darkest-coloured, if not the handsomest, flowers of the genus. The flowers are also, he says, very large for the size of the plant. It is nearly related to H. rhodánthum, but is readily distinguished from it by its canescent leaves, and stronger habit of growth.

♣ 82. H. CONFU`SUM *Swt.* The confused Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 91.; Don's Mill., 1. p. 313.
Synonyme. H. poliifòlium *Dec. Prod.*, 1. p. 283.
Engraving. Swt. Cist., t. 91.

Spec. Char., &c. Stem suffruticose. Branches procumbent, smoothish, rather tomentose at the apex. Leaves oblong, ovate, bluntish, rather flat; under surface tomentose, hoary; upper surface glabrous, green. Stipules and bracteas linear, green, ciliated. Calyxes striated, smoothish, rather shining. Petals imbricate. (*Don's Mill.*, i. p. 313.) A native of France and Spain, and, according to Sweet, cultivated in British nurseries in 1829. Its flowers are white, and of a delicate texture. This sort, Sweet observes, is generally found, in the nurseries, under the name of H. *p*oliifòlium; but he thinks that it has nothing to do with the English species of that name. For some reason of this kind,we suppose, it has been called the H. confùsum.

♣ 83. H. LANCEOLA`TUM *Swt.* The lanceolate-*leaved* Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 100.; Don's Mill., 1. p. 313.
Engraving. Swt. Cist., t. 100.

Spec. Char., &c. Stem suffruticose, much branched, procumbent. Branches ascending, smoothish, hoary-tomentose at the apex. Leaves lanceolate, acute, with somewhat revolute margins; green and smoothish above, but hoary-tomentose beneath. Stipules awl-shaped, linear, longer than the footstalks of the leaves. Sepals smoothish, or rather pilose. Petals imbricate. (*Don's Mill.*, i. p. 313.) A hybrid, found in gardens in 1818, and producing white flowers, marked with yellow, from May to August. "Confused with H. *p*oliifòlium by some botanists," but readily distinguished by its sharp-pointed leaves, which are of a glossy green on the upper side, and by its broad imbricated petals. Plants of it were in the Chelsea Botanic Garden in 1829.

♣ 84. H. POLIIFO`LIUM *Pers.* The Polium-leaved Helianthemum, *or Sun Rose.*

Identification. Pers. Ench., 2. p. 80.; Don's Mill., 1. p. 313.
Synonyme. Cistus polifòlius *Lin. Sp.*, 745., *Smith's Engl. Bot.*, 1322., *Dill. Elth.*, 175. t. 145. f. 172.
Engravings. Smith's Engl. Bot., t. 1322.; Dill. Elth., 175. t. 145. f. 172.

Spec. Char., &c. Stem suffruticose, branched. Branches procumbent, densely tomentose. Leaves oblong-linear, with revolute margins, hoary-tomentose on both surfaces. Stipules narrow, linear, obtuse, longer than the petioles, and are, as well as the bracteas, tomentose and ciliated. Petals distinct, crenulated. (*Don's Mill.*, i. p. 313.) A native of England, producing its white flowers, marked with yellow, from May to August. It is found on stony hills near the sea side, particularly on Brent Downs, Somersetshire; also at Babicome, near Newton Abbot, and on Tor Hill, near Torquay, Devonshire.

85. H. MUTA'BILE *Pers.* The changeable-*coloured-flowered* Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., 106.; Pers. Ench., 2. p. 79.; Dec. Prod. 1. p. 283.; Don's Mill., 1. p. 313.
Synonyme. Cistus mutábilis *Jacq. Icon. rar.*, 1. t. 99., *Misc.*, 2. p. 340.
Engravings. Swt. Cist., t. 106.; Jacq. Icon. rar., 1. t. 99.

Varieties. There are three forms of this very handsome species; one with white flowers, another with smaller flowers of a rose red, and the third with double rose-coloured flowers.

Spec. Char., &c. Stem suffruticose. Branches procumbent, rather tomentose. Leaves flat, ovate-oblong, acutish; upper surface glabrous, under surface tomentose, pale-cinereous. Stipules rather pilose, generally equal in length with the footstalks of the leaves, or longer. Calyxes striated, smoothish. Petals imbricate. (*Don's Mill.*, i. p. 313.) A native of Spain, and in cultivation in British gardens in 1829. The flowers are produced from June to August, in great abundance; and seeds are ripened afterwards in fine seasons. The plants are quite hardy. They were cultivated for sale in the Clapton Nursery in 1829.

86. H. VARIEGA'TUM *Swt.* The variegated Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 38.; Don's Mill., 1. p. 314.
Engraving. Swt. Cist., t. 38.

Spec. Char., &c. Stem suffruticose, procumbent. Branches tomentose, rather hoary, diffusely procumbent. Leaves lanceolate, acute, flattish; under surface hoary-tomentose, upper surface green, rather scabrous. Stipules linear, ciliated, longer than the petioles. Calyxes covered with short violaceous tomentum. Petals imbricate, undulated. (*Don's Mill.*, i. p. 314.) A hybrid between H. rhodánthum and H. lineàre, found by Mr. Sweet in the Chelsea Botanic Garden in 1827. "When in full bloom, it makes a very pleasing appearance, from the diversity of colours in its flowers; some being nearly all red, others variegated with dark and light red and white, and some altogether white: it also continues to bloom, if the weather prove favourable, from May to November." It is as hardy as the indigenous species.

87. H. VERSI'COLOR *Swt.* The various-coloured Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 26.; Barrel. Icon., 440.; Don's Mill., 1. p. 314.
Engravings. Barrel. Icon., 440.; Swt. Cist., t. 26.

Spec. Char., &c. Stem shrubby, erect. Branches ascending, rather hoary from stellate down. Leaves oblong, flat, or concave above; under surface hoary-tomentose, upper surface green, glabrous. Stipules oblong-linear, ciliated, bristly at the top, somewhat longer than the leaves. Calyxes covered with short tomentum. Petals imbricate. (*Don's Mill.*, i. p. 314.) A native of the south of Europe, and readily distinguished from H. variegàtum by its upright habit of growth, and its lanceolate and acutely pointed leaves. The flowers are very variable in colour, scarcely two on the plant being alike; some are of a bright red, others nearly yellow, some copper-coloured, and others with a mixture of all these colours, and of the different shades between them; so that the plant, when in flower, has a curious variegated appearance. (*Sweet.*)

♄ 88. H. SULPHU`REUM *Willd.* The sulphur-*colour-flowered* Helianthemum, *or Sun Rose.*

Identification. Willd. Enum. Suppl., 39.; Swt. Cist., t. 37.; Don's Mill., i. p. 314.
Engraving. Swt. Cist., t. 37.

Spec. Char., &c. Stems branched, procumbent. Leaves lanceolate, flat; upper surface green, under surface paler, but beset with stellate pubescence on both surfaces. Racemes terminal, few-flowered. (*Don's Mill.*, i. p. 314.) A native of Spain, and cultivated in British gardens in 1795. A very distinct variety, when in flower, during June and July. It is tolerably hardy, but requires a little protection during very severe frosts. Plants were in the Fulham Nursery in 1826.

♄ 89. H. STRAMI'NEUM *Swt.* The straw-*colour-flowered* Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 93.; Don's Mill., 1. p. 314.
Engraving. Swt. Cist., t. 93.

Spec. Char., &c. Stems branched, elongated, procumbent, tomentosely pubescent at the apex. Leaves flat, or with the margins scarcely revolute; green above and pilose, hoary-tomentose beneath; lower ones roundish ovate, obtuse; upper ones oblong-lanceolate, acutish. Stipules lanceolate, acute, ciliated, twice the length of the petioles. Racemes many-flowered. Calyx striated, smoothish. Petals obovate, spreading, distinct. (*Don's Mill.*, i. p. 314.) Found in gardens, and, probably, a hybrid. Its straw-coloured flowers are produced from May to August. Plants were in the Clapton Nursery in 1829.

Variety.

♄ *H. s.* 2 *múltiplex* (*Swt. Cist.*, t. 94.) has double straw-coloured flowers, with the petals orange-coloured at the base. It is a very beautiful variety, tolerably hardy. Plants of it were in the Hammersmith Nursery in 1829.

♃ 90. H. DIVERSIFO`LIUM *Swt.* The various-leaved Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 95.; Don's Mill., 1. p. 314.
Engraving. Swt. Cist., t. 95.

Variety.

♃ *H. d.* 2 *múltiplex.*— Flowers large, double, and of deep purplish red, mixed with lighter-coloured ones.

Spec. Char., &c. Stem suffruticose, ascending, branched. Branches rather tomentose, erectly ascending. Leaves stalked, green, hairy above, hoary-tomentose beneath; lower ones oval or oblong, obtuse, flat; upper ones linear-lanceolate, ciliated, three to four times longer than the petiole. Sepals pilose. Petals crenulated, distinct. (*Don's Mill.*, i. p. 314.) It is not known of what country it is a native; but it is, or has been, cultivated in England, as Sweet's drawing was taken from a plant in the Hammersmith Nursery in 1829. It is nearly allied to H. *poliifòlium*, and has a very brilliant appearance from May to June, from the dark rich red of its flowers, each of the petals of which has a deep copper-coloured mark at its base. The plant is a very desirable one for rockwork. When grown in pots, it requires a light sandy soil.

♄ 91. H. ERIOSE'PALON *Swt.* The woolly-sepaled Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 76.; Don's Mill., 1. p. 314.
Engraving. Swt. Cist., t. 76.

Spec. Char., &c. Stems branched, procumbent, rather tomentose, hoary at the apex. Leaves lanceolate, acute, with somewhat revolute margins, green on both surfaces, and beset with starry hairs. Stipules linear, acute, ciliate, twice as long as the footstalks of the leaves. Racemes terminal, many-flowered. Calyxes clothed with woolly hairs. Petals obovate, crenulated, distinct at the base. (*Don's Mill.*, i. p. 314.) A hybrid, found in Colvill's Nursery, Chelsea, in 1828. It is nearly related to H. sulphùreum, but differs from it in habit, and in having a woolly calyx. The leaves are narrow, and undulated in the margins.

92. H. *RO'SEUM* *Dec.* The Rose-*colour-flowered* Helianthemum, *or Sun Rose.*

Identification. Dec. Fl. Fr., 4. p. 822.; Don's Mill., 1. p. 314.
Synonyme. Cístus ròseus *All. Ped.*, 2. p. 105. t. 45. f. 4., but not of Jacq.
Engraving. Swt. Cist., t. 55.

Variety.
H. r. 2 *múltiplex.* (*Swt. Cist.*, 86.) — A very pretty double variety: it is well suited to rockwork, on which it grows vigorously, and produces large flowers. It is quite hardy, and continues in bloom the whole summer.

Spec. Char., *&c.* Stem suffruticose, rather procumbent, somewhat tomentose. Leaves ovate-lanceolate, tomentose on the under surface, green above, hairy. Stipules lanceolate-linear, ciliated. Pedicels and calyxes pilosely hairy. (*Don's Mill.*, i. p. 314.) A native of the south of Europe, and very nearly allied to H. vulgàre. The petals are rose-coloured, and imbricate at the base. It flowers in June and July, and was introduced in 1815. It is a very pretty plant, from the delicate colour of its flowers; and it is very suitable for rockwork, as it will continue in bloom for several months. It requires protection during frosts. It was cultivated in the Fulham Nursery in 1827.

93. H. FŒ'TIDUM *Pers.* The fetid Helianthemum, *or Sun Rose.*

Identification. Pers. Syn., 2. p. 79.; Don's Mill., 1. p. 314.
Synonyme. Cístus fœ tidus *Jacq. Icon. rar.*, 1. p. 98., *Misc.*, 2. p. 341.

Spec. Char., *&c.* Stem suffruticose, procumbent, pilosely hairy. Leaves oblong, green on both surfaces, hairy, roughish. Stipules hairy, linear, longer than the footstalks of the leaves. Pedicels and calyx rather hairy. (*Don's Mill.*, i. p. 314.) A hybrid, resembling H. vulgàre, but differing from it in having white flowers. The whole plant is said to smell like *Bryònia.* It produces its flowers from May to July, and was in cultivation in 1800.

94. H. *HYSSOPIFO'LIUM* *Tenore.* The Hyssop-leaved Helianthemum, *or Sun Rose.*

Identification. Tenor. Syn. Fl. Neap., p. 48.; Don's Mill., 1. p. 314.

Spec. Char. Stem suffruticose, ascending. Branches hairy-tomentose. Lower leaves oval, upper ones oblong-lanceolate, green on both surfaces, flat, hairy. Calyxes hairy. Petals imbricate. (*Don's Mill.*, i. p. 314.) Varying considerably by culture.

Varieties.
H. h. 1 *crocàtum* (*Swt. Cist.*, t. 92.) has flowers saffron-coloured, with more or less, of a ferrugineous tint, and may represent the species. Plants of it were in the Clapton Nursery in 1828.
H. h. 2 *cùpreum* (*Swt. Cist.*, t. 58.) has flowers of a reddish copper-colour. Plants of it were in the Fulham Nursery in 1827.
H. h. 3 *múltiplex* (*Swt. Cist.*, t. 72., and our *fig.* 75.) has double flowers, of a reddish copper-colour. Plants of this variety were in the Fulham Nursery in 1828.

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Description, &c. All the three forms of this species are splendid plants; they are hardy, of luxuriant growth, flowering freely, and of the easiest culture, either in pots or on banks of light sandy soil, covered with flints or stones. The flowers of the copper-coloured variety, and also the leaves, are larger than those of the two other kinds. The double-flowered variety appears to be of a more upright habit of growth, and not quite so robust as the others. Sweet says that he is "acquainted with two other very distinct varieties; one with flowers of a lighter colour, and the other having double flowers."

95. H. CU'PREUM *Swt.* The copper-*colour-flowered* Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 66.; Don's Mill., 1. p. 314.
Engraving. Swt. Cist., t. 66.

Spec. Char., &c. Stem suffruticose, procumbent. Branches ascending, rather tomentose; adult ones glabrous. Leaves oblong-lanceolate, channeled; upper surface green, hairy; under surface hoary-tomentose. Stipules lanceolate, acute, ciliated, bristly at the apex, twice as long as the footstalks of the leaves. Calyxes tomentosely pilose. Petals imbricated. (*Don's Mill.*, i. p. 314.) A hybrid, found by Mr. Sweet in the Hammersmith Nursery in 1827. The petals are of a dark copper colour, with a darker mark at the base of each. The flowers appear from May to August, and the plant requires very little protection.

96. H. VENU'STUM *Swt.* The handsome Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 10.; Don's Mill., 1. p. 314.
Engraving. Swt. Cist., t. 10.

Spec. Char., &c. Stem suffruticose, ascending, branched. Branches glabrous, warted, somewhat tomentose at the apex. Leaves oblong-lanceolate, acute, flat, or hardly revolute in the margins, but denticulately scabrous; under surface hoary-tomentose, upper surface green, shining. Stipules lanceolate, hairy, ciliated, twice as long as the footstalks of the leaves. Inner sepals membranous, with hairy warted nerves. Petals imbricated. (*Don's Mill.*, i. p. 314.) The native country of this beautiful plant is not known, though it is now very common in collections about London. It is very suitable for rockwork, as it is quite hardy, and continues in flower during the whole summer. In some collections, Sweet tells us, it is considered only as a variety of H. vulgàre; but he says that it is more nearly allied to H. rhodánthum; from which, however, it may be easily distinguished "by its warted stalks and calyxes, and its smooth shining stems." It was in Colvill's Nursery in 1825.

97. H. MI'LLERI Swt. Miller's Helianthemum, *or Sun Rose.*

Identification. Swt. Cist., t. 101.; Don's Mill., 1. p. 315.
Engraving. Swt. Cist., t. 101.

Spec. Char. Stem suffruticose, procumbent. Branches hairy-tomentose. Leaves oblong, bluntish, flat, green on both surfaces, hairy. Stipules falcate, longer than the petioles. Calyxes hairy. Petals imbricate. (*Don's Mill.*, i. p. 315.) A hybrid, with saffron-coloured flowers, with a dark mark at the base of each petal. It is nearly related to H. *h*yssopifòlium, from which it differs in its dull green and rough leaves, which are much more hairy. It is also related to H. nummulàrium, and may, probably, be a hybrid between the two. It is one of the most ornamental sorts of the section to which it belongs, and is so hardy as to require no protection in winter. Plants of it were in the Bristol Nursery in 1829.

98. H. *MAJORANÆ*FO'LIUM *Dec.* The Marjoram-leaved Helianthemum, *or Sun Rose.*

Identification. Don's Mill., 1. p. 315.
Synonymes. H. *m.* var. α *Dec. Fl. Fr.*, 6. p. 225.; Cistus *majoranæ*fòlius *Gouan. Herb.*, p. 26. ?

Spec. Char. Suffruticose, erect, much branched. Branches hairy-tomentose. Leaves stalked, ovate-oblong, acutish, with revolute margins; under surface hoary-tomentose, upper surface greenish glaucous, tomentosely hairy. Stipules awl-shaped, bristly. Calyxes densely clothed with white hairs. (*Don's Mill.*, i. p. 315.) A native of the south of Europe, and introduced in 1818. It produces its yellowish-white flowers in May and June.

99. H. HIRSU'TUM *Dec.* The hairy Helianthemum, *or Sun Rose.*

Identification. Dec. Prod. 1. p. 284.; Don's Mill., 1. p. 315.
Synonyme. Cistus hirsùtus *Lapeyr. Abr.*, 303., but not of Lam.

Spec. Char. Suffruticose, stipulate, hairy. Leaves stalked; under surface hoary. Lower leaves rounded, upper ones lanceolate, acute. Flowers secund, in terminal racemes. (*Don's Mill.*, i. p. 315.) A native of the eastern Pyrenees, on rocks. It has large white flowers, and is procumbent; but it has not yet been introduced into British gardens.

GENUS III.

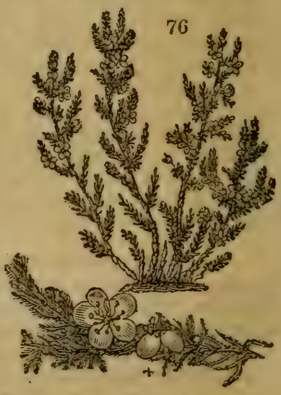
HUDSO'NIA L. THE HUDSONIA. *Lin. Syst.* Polyándria Monogýnia.

Identification. Lin. Mant., 11.; Nutt. Gen. Amer., 2. p. 4.; Dec. Prod., 1. 284.
Derivation. Named in honour of *William Hudson*, a London apothecary, the author of *Flora Anglica*, published in 1762.

Gen. Char. Sepals 5, equal. Petals 5. Stamens 15—30. Filaments filiform. Anthers small, opening lengthwise. Style straight, simple, equalling the stamens in length. Stigma simple. Capsule 1-celled, 3-valved, 1—3-seeded, oblong or obovate, coriaceous, smooth or pubescent. Seeds granulated. Embryo immersed in a horny albumen. (*Don's Mill.*, i. p. 315.) Small heath-like shrubs, natives of North America, with yellow flowers, almost sessile, solitary, or aggregate.

♣ 1. H. *ERICOÏ'DES* *L.* The Heath-like Hudsonia.

Identification. Lin. Mant. 74.
Engravings. Willd. Hort. Ber. t. 15.; Swt. Cist., t. 36.; Don's Mill., 1. p. 315.; and our *fig.* 76.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Spec. Char., &c. Pubescent. Stems suffruticose, erect. Branches elongated. Leaves filiform, awl-shaped, rather imbricated. Peduncles solitary, rising laterally from the leafy bud. Calyx cylindrical, obtuse. Capsule pubescent, always 1-seeded. Valves oblong. (*Don's Mill.*, i. p. 315.) A heath-like shrub, native of New Jersey and Virginia, in pine woods, and introduced into England in 1805. It is a short, densely branched, suffruticose plant, rather scarce in British collections. Its flowers are yellow, small, solitary, and produced from May to July. The plant is rather more difficult to cultivate than those of the other genera of this order; but it thrives very well in sandy peat; its native habitat being similar to that of the common heath in England.

♣ 2. H. [? *E.*] NUTTA'LLI Swt. Nuttall's Hudsonia.

Identification. Swt. Cist., p. 19.; Don's Mill., 1. p. 315.
Synonymes. H. ericoïdes *Nutt. Gen. Amer.*, 2. p. 4.

Spec. Char., &c. Equally pubescent. Stem erect, much branched. Leaves about 2 lines long, filiform, rather imbricate, but distinct from the stem. Pedicels lateral, crowded; when in fruit, from 5 to 8 lines long. Calyx cylindrical, obtuse, pubescent, with the segments oblique and convolute; the two smaller ones hardly visible when in fruit, but sufficiently distinct in the unexpanded flowers. Capsules cylindrical, oblong, externally pubescent, always 1-seeded. Valves oblong; the central suture obsolete. (*Don's Mill.*, i. p. 315.) An evergreen undershrub, closely resembling H. ericoïdes, and perhaps only a variety of it.

♣ 3. H. [? *E.*] TOMENTO'SA *Nutt.* The tomentose-*leaved* Hudsonia.

Identification. Nutt. Gen. Amer., 2. p. 5.; Swt. Cist., t. 57.; Don's Mill. 1. p. 316.
Engraving. Swt. Cist., t. 57.

Spec. Char., &c. Tufted, and hoary-tomentose. Stems intricate, dense. Leaves minute, densely imbricated, ovate, acute. Flowers aggregate, almost sessile. Calyxes rather cylindrical, with obtuse partitions. Capsules 1-seeded. Valves ovate, smooth. (*Don's Mill.*, i. p. 316.) Found in New Jersey, Delaware, Maryland, &c., in the sea sand. It was first discovered by Mr. Nuttall, and described by him as a very distinct species. Mr. James M'Nab, in " An Account of some of the rarer Plants, observed during an Excursion in the United States and the Canadas in 1834," published in the *Edinburgh New Philosophical Journal*, No. 37., July, 1835, says that he found this species in dry sandy barrens in New Jersey, and that he is much inclined to think it is only a variety of H. *e*ricöides: they were both seen in abundance together; and many subvarieties were observed, which seemed to unite the two. This curious shrub covers large tracts of the dry white sandy plains of New Jersey, in large round tufts, where it resembles very much the common ling (Callùna vulgàris) of Scotland." Were all botanists, who, like Mr. M'Nab, are at once scientific observers and practical cultivators, to exercise their common sense, as he has done in this instance, we are persuaded that the number of alleged species, in every genus which now contains a great many, would soon be considerably reduced. The flowers of this kind of hudsonia are small and yellow, and appear from May to July. Like H. Nuttáll*i*, this is somewhat difficult of culture, requiring a peat soil, a shady situation, and protection by glass or by snow during winter. All the species are readily increased by layers, or by cuttings of the ripened wood, planted in sand under a handglass.

App. I. *Other Species of* Cistàceæ.

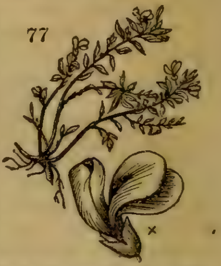
Long as is the list of *C*istàceæ, and especially of helianthemums, in this chapter, it might have been increased by the addition of various other species, or sorts, described by botanists. The utility, however, of such additions is very questionable. We have confined ourselves, as much as possible, to sorts that are, or were lately, in existence in the neighbourhood of London; and for this information we have taken as our guide the C*istineæ* of Sweet, commenced in 1825, and completed, in one volume, in January, 1830. We think we may safely assert that several of the sorts described in that work are now no longer in existence; because, in consequence of their tenderness, and liability to be neglected, they are continually dying off during winter, and as continually being replaced by others raised from seeds, either imported or saved in this country. The chief use which we propose to ourselves, in giving so long a descriptive list, is, to show the numerous and beautiful forms assumed by this family of plants, in order to promote their more extensive cultivation. Supposing a cultivator about to form a collection of *C*istàceæ, we should attach much less importance to his being able to procure all the sorts described by Mr. Sweet, than to his obtaining all the sorts easily procurable, whatever names they might pass under, and cross-fecundating them, so as to produce new forms. There can be no doubt whatever that the sorts of both the genera *C*ístus and Heliánthemum might, by cross-fecundation, be increased *ad infinitum;* and, considering their very great beauty as border and rockwork shrubs, we think they merit the attention of cultivators at least as much as many florist's flowers.

CHAP. XII.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER POLYGALA`CEÆ.

There is only one perfectly hardy ligneous plant belonging to this order, and it is of such humble growth, that, for all practical purposes, it may be considered as a herbaceous plant, rather than as a shrub. We have introduced the order, however, chiefly for the purpose of recommending gardeners to try some of the beautiful Cape species of *Pol*ý*gala* against conservative walls.

☼ 1. *Poly'gala* Chamæbu'xus *L.* The Dwarf Box Polygala, *or Box-leaved Milkwort.* (Jacq. Aust., t. 233.; Sims, Bot. Mag., t. 316.; and our *fig.* 77.)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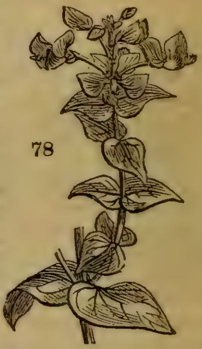
Described as having fruticose, branched, procumbent stems, with oblong-lanceolate mucronated leaves; the racemes 1—2-flowered; the keel of the flower crested. It forms a little evergreen tuft, the leaves being like those of the dwarf box; and the yellowish flowers, which are slightly tipped with purple, resembling at a distance those of the order Legumi. nòsæ. It is a native of mountainous woods in many parts of Europe, particularly in those of Germany and Switzerland. In rocky situations, it seldom exceeds 6 in. in height; but in heath soil, or in sandy loam enriched with leaf mould, it will grow to the height of a foot and upwards, flowering freely every year. This plant has been in cultivation in British gardens since 1658. Miller says that the seeds, which are with difficulty obtained from abroad, do not vegetate till they have been a whole year in the ground; unless they are sown soon after they are ripe, which is in August or September, in which case they will come up the following spring. It is readily propagated, however, by division of the plant, as it throws up suckers in abundance. This plant succeeds very well in most gardens, in a shady situation, and in peat soil kept rather moist. Intermixed with Gaulthèr*ia* procúmbens, Mitchéll*a* rèpens, Linnæ'*a* boreàlis, and other dwarf-growing shrubs, *P*olýgala Chamæbúxus will form a rich margin to American groups. The price, in the London nurseries, is 50*s.* a hundred; it being frequently sold in quantities for forming edgings to beds of peat-earth plants.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✹ 2. *The half-hardy Polygalas* are evergreen shrubs, natives of the Cape of Good Hope; and in Britain they are generally treated as greenhouse plants, though some of them have stood against a wall, with protection during winter: and so great is their beauty during summer, that, we think, whoever has a conservative wall ought to place some of them against it. Above twenty Cape species have been introduced; but the most common are, P. *oppositifòlia* L. (*Bot. Reg.*, t. 636.), which is a native of the mountainous part of the Cape, and tolerably hardy; P. *oppositifòlia màjor* (*fig.* 78.), called by some P. grandiflòra, which is equally hardy, and is a fine variety; P. *latifòlia* Ker, P. m*yrtifòlia*, P. *grandiflòra* Lodd., P. *bracteolàta* L., P. *speciòsa* Bot. Mag., and P. *attenuàta* Lodd., all fine plants, with bright purple flowers mixed with white, and some of them with red, and all procurable in the principal London nurseries. Like almost all other Cape shrubs, they grow best in heath soil, or in a mixture of sand and leaf mould; and, when they are cultivated against a wall in the open ground, great care should be taken not to let their stems be injured by damp in autumn, more especially at the surface of the ground; or, in technical language, at the collar. There are some trees and shrubs belonging to the order *Poly*galàceæ in the Himalaya; which, when introduced, will be worth trying against a conservative wall with the Cape species.

CHAP. XIII.

OF THE HARDY AND HALF-HARDY LIGNEOUS SPECIES OF THE ORDER PITTOSPORA'CEÆ.

Distinctive Characteristics. Thalamiflorous. (*H. B.*) Sepals 5, petals 5; both imbricate in æstivation. Stamens 5, distinct, alternate with the petals. Ovarium of several cells, with the placentæ in the axis; cells or placentæ 2 or 5 in number, and many-ovuled. Style 1. Stigmas as many as the placentæ. Fruit capsular, or berried. Seeds often covered with a glutinous or resinous pulp. (*Lindl. In. to N. S.*) The species contained in this order are all ligneous; and are either trees, or bushy or climbing shrubs, with terminal or axillary flowers, usually of a bell-shape, with a spreading border. They are natives of warm climates; but some species of Pittósporum, Billardièr*a*, and Sólly*a*, are half-hardy, and suitable for a conservative wall.

Genus I.

BILLARDIE'R*A* Sm. The Billardiera, *or Apple-berry.* *Lin. Syst.* Pentándria Monogýnia.

Derivation. Named in honour of *Jean Jacques Julien La Billardière*, a celebrated French botanist, who visited Syria, and afterwards New Holland in D'Entrecastreux's expedition. He was the author of *Novæ Hollandiæ Plantarum Specimen*, and other works.

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Gen. Char. *Corolla* tubularly bell-shaped. *Anthers* widely distant, opening lengthwise. *Ovary* 2-celled, many-ovuled. *Pericarp* soft, spongy, subbaccate, the cells inflated. *Seeds* many, lying loose in the cells, not attended by pulp. Twining Australian shrubs, with entire or serrated leaves, and axillary flowers, sub-solitary, pendulous, and of a colour passing from green to yellow. (*Lindl.*, in *Bot. Reg.*, t. 1719.) The fruit, in most of the species, is of a bluish colour when ripe, and is eatable. (*Dec. Prod.*, and *Don's Mill.*)

£ 1. B. LONGIFLO'RA *Labill.* The long-flowered Billardiera, *or Apple-berry.*

Identification. Labill. Nov. Holl., t. 89.; Don's Mill., 1. p. 373.
Engravings. Labill. Nov. Holl., t. 89.; Bot. Mag., t. 1507.; and our *fig.* 79.

Spec. Char. Branches climbing, younger ones scarcely pubescent. Leaves lanceolate, entire. Pedicels 1-flowered, glabrous, one half shorter than the flower. Berries almost globose, torose, glabrous. (*Don's Mill.*, i. p. 373.) An evergreen twiner, introduced from Van Diemen's Land in 1810; growing vigorously, and flowering and fruiting freely in conservatories; whence we are led to conclude that it will answer against a conservative wall. In a conservatory it is an interesting twiner, from its slender habit, abundant small leaves, and rather numerous dark blue fruits.

£ 2. B. OVA'LIS *Lindl.* The oval-*leaved* Billardiera, *or Apple-berry.*

Identification. Lindl. in Bot. Reg., t. 1719.
Engraving. Bot. Reg., t. 1719.

Spec. Char., &c. Of this species Dr. Lindley states that "it is nearly related to B. longiflòra, from which it chiefly differs in its smaller and shorter flowers, and more oval obtuse leaves. Its flowers change from greenish yellow to dark purple, and appear in May. A native of Van Diemen's Land, whence it was introduced by Mr. Low of Clapton." (*Bot. Reg.*, t. 1719. Nov. 1834.) Dr. Lindley adds, "It is probable that Billardièr*a* ovàlis will be quite hardy enough to live in this country, trained to a west wall, if protected from wet in winter; at all events, a cold-pit would be an ample covering for it, and for all the other species. The beautiful Sóllya grows with all its native luxuriance in such a situation." (*Ibid.*)

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£ 3. B. MUTA'BILIS *H. K.* The changeable-*coloured-flowered* Billardiera, *or Apple-berry.* (*fig.* 80.)

A native of New South Wales, and producing purplish flowers from June to September. It is not such a strong-growing plant as B. longiflòra, and is probably more tender than that species; but, on account of the beauty of the flowers, and the large size of the fruit, it ought to be tried.

GENUS II.

SO'LLY*A* Lindl. THE SOLLYA. *Lin. Syst.* Pentándria Monogýnia.

Synonyme. Billardièr*a*, in one species.
Derivation. Named in honour of *Richard Horsman Solly, Esq.*, F.R.S., &c.; "whose general acquaintance with science, and, as far as botany is concerned, with vegetable physiology and anatomy, are such as to entitle him most fully to such a mark of respect." (*Lindl.*, in *Bot. Reg.*, t. 1466.)

Gen. Char. *Calyx* minute. *Corolla* spreadingly bell-shaped, petals rather unequal. *Stamens* opposite the petals. *Anthers* disposed into a cone, connate at the tip, and each opening by two pores at its tip. *Ovary* 2-celled, many-ovuled. *Pericarp* spindle-shaped, many-seeded. — Australian shrubs, twining in some degree. Leaves simple, alternate, remaining long on the plant, devoid of stipules. Flowers in cymes that are placed opposite the leaves, blue. (*Lindl.*, in *Bot. Reg.*, t. 1466. Jan. 1832.) Fruit 4-celled, the seeds enveloped by a soft pleasant pulp. (*D. Don*, in *Sw. Fl.-Gard.*, 2. ser. Aug. 1834.) Fruit, as examined in a half-ripe state, 2-celled; each cell occupied by two rows of seeds, set fast in a firm somewhat fleshy substance, which fills each cell, and which we presume to be what finally becomes the pulp that envelopes the seeds. (*Lindl.*, in *Bot. Reg.*, t. 1719. Nov. 1834.)

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£ 1. S. HETEROPHY'LLA *Lindl.* The various-leaved Sollya.

Identification. Lindl., in Bot. Reg., t. 1466. t. 1719.
Engravings. Bot. Reg., t. 1466.; Swt. Br. Fl.-Gar., 2. s., t. 232.; and our *fig.* 81.

Spec. Char., &c. Flowers constantly bright blue. Fruit including pulp that envelopes the seeds. This is a very interesting plant, from its slender stems and branches, its fine full-green and abundant foliage, and its neat, simple-formed, pendulous flowers, with corollas of a beautiful bright blue. It is found wild on the south-western coast of New Holland, and was introduced in 1830. It has been since treated by some as a green-house plant, and by others as being nearly hardy. It grows in sand and loam, with a mixture of leaf mould, and is readily propagated by cuttings of the young wood in sand under a glass. Plants, in the London nurseries, cost 2*s.* each.

2. S. ANGUSTIFO'LIA *Lindl.* The narrow-leaved Sollya.

Identification. Lindl., in Bot. Reg., t. 1466.
Synonymes. Billardièra fusifórmis *Lab. Nov. Holl., Don's Mill.,* 1. p. 373., and *Loudon's Hort. Brit.,* No. 5530.
Engraving. Labill. Nov. Holl., t. 90.

Spec. Char., &c. Flowers cream-coloured, changing to bluish. Fruit dry, the pericarp villous, of the consistence of parchment. (*Lindl.,* in *Bot. Reg.,* t. 1466.; *Don's Mill.,* 1. p. 373., under Billardièra fusifórmis *Lab.*) Branches hardly climbing; younger ones rather villous. Leaves lanceolate, entire. Cymes few-flowered. Petals spreading. Native of Van Diemen's Land. A green-house climbing shrub. Flowers in May and August. Cultivated in Britain in 1823. (*Don's Mill.,* i. p. 373., under the name Billardièra fusifórmis *Lab.*) This species deserves trial against a conservative wall, along with the others.

GENUS III.

PITTO'SPORUM *Banks.* THE PITTOSPORUM. *Lin. Syst.* Pentándria Monogýnia.

Identification. Banks, in Gært. Fr. 1. p. 286. t. 59.; Dec. Prod., 1. p. 346.; and Don's Mill., 1. p. 373.
Derivation. From *pitta,* pitch, and *sporos,* a seed; in allusion to the seeds being covered with a sticky pulp.

Gen. Char. Calyx of 5 sepals. *Petals 5,* with the claws conniving into a connate tube. *Capsules* smooth or hairy; 2—5-valved, 1-celled, bearing a dissepiment in the middle of each valve. *Seeds* covered with a resinous pulp. (*Don's Mill.,* i. p. 373.) — Evergreen shrubs, or low trees, with entire permanent leaves, generally more or less lanceolate. The species known to be half-hardy are two, but all the rest may be equally so.

1. P. *TOBI'RA* Ait. The Tobira Pittosporum.

Identification. Sims Bot. Mag., 1396.; Dec. Prod., 1. p. 346.; and Don's Mill., 1. p. 373.
Synonymes. Euónymus *Tobìra* Thunb., chap. 99.; Pittósporum chinénse *Donn's. H. Cantab.,* 48. Tobira Japane, *Fr.*; Chinesischer Klebsaame, *Ger.*
Engravings. Kæmpf. Amœn., t. 797.; Bot. Mag., t. 1396.; and our *fig.* 82.

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Spec. Char., &c. Leaves obovate, obtuse, coriaceous, quite smooth. Peduncles 1-flowered, pubescent, disposed in aggregate umbels. (*Don's Mill.,* i. p. 373.) An evergreen shrub, growing to the height of 12 ft. in its native country, and producing its cream-coloured flowers from March till August. It was introduced in 1804, and is generally treated as a green-house plant; but, planted in a warm situation against a wall, it endures the winters of the climate of London without any protection when they are mild; and with the ground covered with litter, and the branches screened by a mat, when they are severe. The plant will grow in any free soil, sufficiently drained, and is readily propagated by cuttings of the young wood in sand. The largest specimens of which we have received any accounts are in Ireland; one in the Cullenswood Nursery, near Dublin, 20 years planted, being 10 ft. high, as a standard in the open air. In the neighbourhood of London, there are various plants placed against the ends and fronts of green-houses, which have reached 5 ft. or 6 ft. in height in as many years; which are protected by a mat in very severe winters, and which, when not protected, sometimes die down to the ground, and spring up again the following season. Their glossy dark green leaves, and fragrant cream-coloured flowers, are very ornamental during summer. Price of plants, in the London nurseries, 2*s.* 6*d.* each.

2. P. UNDULA'TUM. The undulated-*leaved* Pittosporum.

Identification. And. Bot. Rep.; Vent. Hort. Cels.; Ker Bot. Reg. Dec. Prod., 1. p. 346.; Don's Mill., p. 373.
Engravings. Vent. Hort. Cels, 1. t. 76.; Bot. Rep., t. 393.; Delauny, Herb. Amat., t. 36.; Schrad. Gen. Ill., t. 4.; Bot. Reg., t. 16.; and our *fig.* 83.

Spec. Char., &c. Leaves oval-lanceolate, undulated, tapering at both ends, and, as well as the footstalks, glabrous. Peduncles terminal, aggregate, pubescent, branched, many-flowered. (*Don's Mill.,* i. p. 373.) An evergreen shrub, growing to the height of 10 ft., introduced in 1789, and producing its white flowers from May to June. As hardy as the preceding species. The finest plant in England is understood to be in the conservatory at Ashridge Park, which, when we saw it in 1829, was 12 ft. high. In various situations, it has lived against a wall, protected during winter and flowering freely in summer. Culture, uses, price, &c., as in the preceding species.

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App. i. *Other Species of Pittósporum.*

P. revolùtum Ait. (*Bot. Reg.*, 186., and *Bot. Cab.*, t. 506.), from Port Jackson; *P. tomentòsum* Bonp. (*Swt. Fl. Aust.*, t. 33.), from New Holland; *P. fúlvum* Rudge; *P. hírtum* Willd., from the Canary Islands; and various other species; are, in all probability, equally hardy with P. *Tobira*. *P. eriocárpum*, from the Himalaya, has already been noticed as probably half-hardy, p. 173.

App. I. *Other Pittosporàceæ probably half-hardy.*

Senàcia nepalénsis Dec., a shrub from Nepal, introduced in 1820, and treated as a green-house plant; and *Bursària spinòsa* Cav. figured in *Bot. Mag.*, 1767., a shrub from New Holland, producing a profusion of elegant little white blossoms; are probably as hardy as the species of Pittósporum, which have been tried against a conservative wall. *Cheiranthèra lineàris* which Dr. Lindley states (*Bot. Reg*, t. 1719.), to be "one of the most beautiful plants in all the flora of New Holland," would be also, if a plant of it could be obtained, well worthy of a trial.

CHAP. XIV.

OF THE HARDY SUFFRUTICOSE PLANTS OF THE ORDER CARYOPHYLLA`CEÆ.

THIS order is introduced chiefly for the sake of the tree carnation, one of the oldest inhabitants of British gardens, and one of the finest plants that can be placed against a conservative wall. There are various species and varieties of Diánthus, which, technically considered, are ligneous plants. Indeed, the common pink and carnation are shrubs, and that, too, evergreen; because they do not die down to an underground bud, at the end of the growing season, like, for example, *Ranúnculus àcris*.

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♣ 1. *Diánthus Caryophýllus var. fruticòsus* Hort., *the shrubby Clove Pink*, or Tree Carnation, in its wild state, is a native of the south of France, of the Alps of Switzerland; and, in England, it is found on old ruinous walls near towns, particularly on Rochester Castle, on the old walls of Norwich, and on ruins adjoining several other old English towns. It has been cultivated in gardens from time immemorial; and is highly valuable, no less for the brilliancy of its colours, than for the aromatic fragrancy of its flowers. The tree variety is one which has been originated, in all probability, by training the plant against a wall, and thus keeping it continually in a growing state without permitting it to rest, and afterwards continuing this habit by propagating it by layers or cuttings. The flowers of the tree carnation are not so various and beautiful as those of the common dwarf carnation; but they are still objects of very great beauty, and are universally admired for their symmetry of form, rich colours, and grateful odour. Planted against an east or west wall, in calcareous loam, and carefully trained, a plant will grow at the rate of a foot a year; and, if protected during very severe winters, it will attain the height of 6 ft. or 8 ft. In Scotland, in the neighbourhood of Edinburgh, in Dalroy Nursery, in 1800, a plant against the west end of a green-house covered, in five years, a space 8 ft. wide, and 6 ft. high, flowering beautifully every year.

♣ 2. *Other suffruticose evergreen Caryophyllàceæ. Diánthus arbúscula* Bot. Reg., 1086., *D. arbòreus* L. (*Bot. Cab.*, 459., and our *fig.* 84.), *D. fruticòsus* L., and *D. suffruticòsus* W., are all beautiful glaucous-leaved evergreens, which require a little protection during winter, and produce their fragrant pink flowers from June to August. *Silène fruticòsa* L., *Arenària verticillàta* W., and *Drỳpis spinòsa* L. (*Bot. Mag*, 2216., and our *fig.* 85.), are all beautiful little evergreens, from 1 ft. to 1½ ft. in height.

CHAP. XV.

OF THE HARDY AND HALF-HARDY SUFFRUTICOSE PLANTS OF THE ORDER *L*INA`CEÆ.

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This order is included in our catalogue for the sake of the tree flax, *Lìnum arbòreum* L. (*Bot. Mag.*, t. 234., and our *fig.* 86.) It is a native of Candia and Italy, on the mountains, and forms a neat little evergreen bush in dry soils, in warm situations in the neighbourhood of London, requiring little or no protection, except during the most severe winters. The largest plants which we have seen of it were in a sandy border in the garden at Nonsuch Park, in Surrey. They were about 2 ft. high, and 3 ft. broad, and they produced their fine large yellow flowers from May to September; in the same situation ripening seeds, from which, or from cuttings, they are readily propagated. *Lìnum taúricum* W., from Tauria, which grows to the height of 1½ ft., and L. *salsolöìdes* Lam., with pink flowers, are equally hardy with *L.* arbòreum; and all three should be included in every complete arboretum and fruticetum. L. *suffruticòsum*, from Spain, an old inhabitant of our green-houses, with pink flowers, is, in all probability, as hardy as the others.

CHAP. XVI.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER *M*ALVA`CEÆ.

Distinctive Characteristics. Thalamiflorous. (*H. B.*) Calyx with a valvate æstivation, mostly with an involucre. Stamens with the filaments monadelphous, and the anthers 1-celled. Pubescence starry. (*Lind. Introd. to N. S.*) The hardy ligneous species of this order are few, but splendid; the *H*ibíscus syrìacus, and its different varieties, being among the most ornamental of flowering shrubs. Chemically, all the species abound in a nutritive mucilage; and, medicinally, they are emollient. The fibrous threads of the inner bark may, in most of the species, when properly prepared, be manufactured into cordage or cloth. The genera containing hardy or half-hardy species are two: Lavátera and *H*ibíscus; the distinctive characters of which are: —

Lava′ter*a* L. Carpels capsular, 1-seeded, disposed into a ring around the axis.

*H*ibi′scus *L*. Carpels joined into a 5-celled capsule.

Genus I.

LAVA′TER*A* L. The Lavatera, or *Tree Mallow.* *Lin. Syst.* Monadélphia Polyándria.

Identification. Lin. Gen., n. 842.; Dec. Prod., 1. 438.; Don's Mill., 1. 468.
Synonymes. The Tree Mallow; Lavatère, *Fr.* and *Ger.*

Gen. Char., &c. *Calyx* 5-cleft, girded by a 3- or 5-cleft involucel; its leaflets being joined as far as the middle. *Carpels* capsular, 1-seeded, disposed into a ring around the axis, which is variously dilated above the fruit. (*Dec. Prod.*, i. p. 438.) The half-hardy ligneous species are L. marítima, tríloba, subovàta, and africana.

✱ 1. L. mari′tima *Gouan.* The sea-*side-inhabiting* Lavatera.

Identification. Gouan. Ill., p. 46.; Dec. Prod., 1. p. 439.; Don's Mill., 1. p. 469.
Synonymes. L. hispánica *Mill. Dict.*, No. 9.; L. rotundifòlia *Lam.*
Engravings. Gouan. Ill., t. 11. f. 2.; Cav. Diss., t. 32. fig. 3.; and our *fig.* 87.

Spec. Char., &c. Stem shrubby, downy. Leaves downy, roundish, bluntly angular, 5-lobed, crenated. Pedicels axillary, solitary. (*Don's Mill.*, i. p. 469.) A shrub, growing from 2 ft. to 3 ft. high, on the rocky shores of the south of France and Spain, producing its white flowers, the petals of which have purple claws, from April to June. It was cultivated in England in 1596, and generally treated as a frame plant; but, like the following species, it only requires a wall, and a little protection, during winter. Plants attained the height of 5 ft., trained against a wall with a south-east aspect, without any protection, in the Botanic Garden, Bury St. Edmunds, about the years 1825, 1826.

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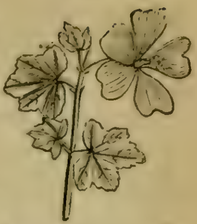

✱ 2. L. TRI'LOBA *L.* The three-lobed-*leaved* Lavater

Identification. Lin. Sp., 972.; Dec. Prod., 1. 439.; Don's Mill., 1. p.46a
Engravings. Cav. Diss., 2. t. 31. f. 1.; Bot. Mag., 2226.

Spec. Char., &c. Stem shrubby, downy. Leaves downy, rather cordate, and somewhat 3-lobed, round, crenated. Pedicels aggregate. Sepals acuminated. (*Don's Mill.*, i. p. 469.) A tomentose shrub, growing to the height of 4 ft. in the south of Spain, and producing large pale-purple flowers in June and July. It was introduced into England in 1759, and is generally treated as a frame plant; but it will grow, and flower beautifully, trained against a wall, and slightly protected during winter. It is easily propagated by cuttings of the young wood; and it also ripens seeds.

✱ 3. L. SUBOVA`TA *Dec.* The subovate-*leaved* Lavatera.

Identification. Dec. Prod., 1. p. 439.; Don's Mill., 1. p. 469.

Spec. Char., &c. Stem suffruticose. Leaves rather downy, ovate, notched, somewhat 3-lobed, with the middle lobe longest. Pedicels 1 or 2, axillary, length of petioles; lobes of calyx acuminated. (*Don's Mill.*, i. p. 469.) A shrub, growing from 2 ft. to 4 ft. high, in fields about Mogadore, on the sea coast of Morocco, producing pale purple flowers in July. It has not yet been introduced into England, but would form a desirable addition to the half-hardy species.

✱ 4. L. AFRICA`NA *Cav.* The African Lavatera.

Identification. Cav. Diss., 5. p. 282.; Dec. Prod., 1. p. 348.; Don's Mill., 1. p. 468.
Synonyme. L. hispida var. *Willd.*
Engraving. Cav. Diss., 5. t. 139. f. 1.; Bot. Mag. t. 2541., as L. hispida

Spec. Char., &c. Stem shrubby, rather tomentose from flocky down. Leaves canescent, all bluntly 5-lobed. Pedicels twin, equal in length to the petioles. Involucel 3-parted, tomentose. (*Don's Mill.*, i. p. 468.) A shrub, found in the south of Spain and the north of Africa, where it grows from 4 ft. to 6 ft. high, producing its pale purple flowers in June and July. It was cultivated in England in 1820, or earlier. In the Bury St. Edmunds Botanic Garden there were plants of it, one or more of which attained the height of 8 ft. or 9 ft. in a warm sheltered border.

App. I. *Other Species of Lavátera likely to prove half-hardy.*

L. Pseùdo-O'lbia Poir., with pale purple flowers, introduced in 1817; *L. phœnícea* Vent., with scarlet flowers, introduced from the Canary Islands in 1816, and forming a tree 10 ft. high.; *L. O'lbia* L., with reddish purple flowers, a native of Provence, which has been in culture in England, as a frame-plant, since 1570, and attains the height of 6 ft. in its native country; with *L. unguiculàta* and *L. híspida* Desf. and, perhaps, some other varieties or species, all highly beautiful; might be subjected to the same treatment. Indeed, there are few kinds of plants more ornamental, when trained against a wall, than the different species of Lavátera and *H*ibíscus: every one knows what a splendid appearance *H*ibíscus *R*ósa-sinénsis makes in stoves, when so trained.

GENUS II.

*H*IBI'SCUS *L.* THE HIBISCUS. *Lin. Syst.* Monadélphia Polyándria.

Identification. Lin. Gen., 846.; Dec. Prod., 1. p. 446.; Don's Mill. 1. p. 476.
Synonymes. Ketmie, *Fr.*; Eibisch, *Ger.*
Derivations. The word *hibiskos* is one of the names given by the Greeks to the mallow. The *H*ibíscus of Pliny appears to be an umbelliferous plant; while that of Virgil is a plant with pliant branches, which was made into baskets. The word *H*ibíscus is supposed by some to be derived from *ibis*, a stork, which is said to feed on some of the species. Ketmie (*Fr.*) is derived from *Kétmia*, the name given to the genus by Tournefort. The German, Eibisch, is the German aboriginal word for the mallow.

Gen. Char., &c. *Calyx* encompassed by a many-leaved, rarely by a few-leaved, involucel, or one with its leaves connate *Petals* not auricled. *Stigmas* 5; carpels joined into a 5-celled 5-valved capsule, with a dissepiment in the middle of each valve on the inside. *Cells* many-seeded, rarely 1-seeded. (*Don's Mill.*, adapted.)—The only hardy ligneous species is *H.* syrìacus.

✿ 1. *H.* SYRI`ACUS *L.* The Syrian Hibiscus, *or Althæa Frutex.*

Identification. Lin. Sp., 978.; Dec. Prod., 1. p. 448.; Don's Mill., 1. 478.
Synonymes. Ketmie des Jardins, *Fr.*; Syrischer Eibisch, *Ger.*
Derivation. It is called Althæa from the resemblance of its flowers to those of the *Althæ`a rŏsea.*
Engravings. Cav. Diss., 3. t. 69. f. 1.; Bot. Mag., t. 83.; and our *fig.* 88.

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Spec. Char., &c. Stem unarmed, arboreous. Leaves ovate, wedge-shaped, 3-lobed, toothed. Pedicels hardly longer than the leaves. Involucel 6—7-leaved. (*Don's Mill.*, i. p. 478.) A deciduous shrub, a native of Syria and Carniola, where it attains the height of 6 ft., and flowers in August and September. The flowers are large, single or double, purple, white, red, or variegated. It is one of our most ornamental hardy shrubs; and, having been in cultivation since 1596, the following varieties have proceeded from it:—

- ✿ H. *s.* 2 *fòliis variegàtis, the variegated-leaved Syrian Hibiscus*, or Althæa Frutex.
- ✿ H. *s.* 3 *flòre variegàto, the variegated-flowered Syrian Hibiscus*, or Althæa Frutex.
- ✿ H. *s.* 4 *flòre purpùreo, the purple-flowered Syrian Hibiscus*, or Althæa Frutex.
- ✿ H. *s.* 5 *flòre purpùreo plèno, the purple-double-flowered Syrian Hibiscus*, or Althæa Frutex.
- ✿ H. *s.* 6 *flòre rùbro, the red-flowered Syrian Hibiscus*, or Althæa Frutex.
- ✿ H. *s.* 7 *flòre álbo, the white-flowered Syrian Hibiscus*, or Althæa Frutex.
- ✿ H. *s.* 8 *flòre álbo plèno, the white-double-flowered Syrian Hibiscus*, or Althæa Frutex.

Description, History, &c. A deciduous shrub, from 6 ft. to 8 ft. in height, with numerous upright white-barked branches; their general character being rather fastigiate than spreading. The leaves are variously lobed. The flowers are axillary, large, and bell-shaped. In English gardens, these flowers are produced from the middle of August to the end of September; and, when the season is dry and warm, they are succeeded by capsules containing ripe seeds. It is a native of Syria and Carniola, and was introduced into England previously to 1629; being mentioned by Parkinson, in his *Paradisus* of that date, as a new shrub, somewhat tender, requiring to be kept in a large pot or tub in the house, or in a warm cellar. In the neighbourhood of Paris, it has been known for upwards of two centuries; and it is found there, as well as about London, to be perfectly hardy. At Berlin and Vienna, in severe winters, it requires protection. In the time of Du Hamel, and of Miller, there were no double-flowered varieties; but these have since been procured from seeds. Double-flowered varieties are now common both in Europe and America. The only use to which the shrub is applied is as a garden ornament, of which it is one of the most conspicuous; and it is the more valuable, because it produces its flowers at a time of the year when few shrubs are in bloom. It forms beautiful garden hedges, more especially when the different sorts are planted in a harmonious order of succession, according to their colours; and when the plants are not clipped, but carefully pruned with the knife. In the colder parts of Britain, and in the north of Germany, few ornamental shrubs better deserve being planted against a wall. It will grow in almost any soil not too wet; but, like all the *M*alvàceæ, seems to prefer one sandy, deep, and rich rather than poor. An open airy situation, where it will ripen its wood, is essential. The single-flowered varieties are propagated by seed, which come up true to their respective colours; the double-flowered varieties are propagated by layers, by grafting on the common sorts, and sometimes by cuttings of the ripened wood, planted in sand in autumn, and covered with a hand-glass during the winter. Price, in the London nurseries: seedlings, 5*s.* a hundred; the different single-flowered varieties, 50*s.* a hundred; and the variegated-leaved and double-flowered varieties, 1*s*. 6*d*. each: seeds are 6*s*. a pound. At Bollwyller, the price is 1 franc and 50 cents each plant, for the single-flowered varieties, and 2 francs 50 cents for each of the double-flowered varieties. At New York, the single-flowered varieties are 25 cents a plant, the white-double-flowered, and the purple-double-flowered, 37 cents a plant; and the other double-flowered varieties, 50 cents a plant: the seed is 56 cents a quart.

App. I. *Other ligneous Plants of the order* M*alvaˋceæ, which will probably be found hardy or half-hardy.*

Sìda pulchélla Bonpl., *Abùtilon* pulchéllum *Bot. Mag.*, t. 2573., and our *fig.* 89. An evergreen New Holland shrub, introduced in 1824, producing its clusters of beautiful white blossoms in the gullies about Sandy Bay, and at the foot of Mount Wellington, in the neighbourhood of Hobart Town, in the depth of winter; and, as might have been expected, it is found to stand the open air, in sheltered situations, in England. There is a plant against a wall in the Botanic Garden at Kew, which has stood there since 1822, without any protection whatever. There is a plant of it at Spring Grove, Middlesex, which forms a bush between 3 ft. and 4 ft. high, which has stood several winters without protection, and flowers freely every winter and spring. We have just (February, 1836) sent to ascertain how it has passed the late severe frosts, when the thermometer was at 10°; and learn, with satisfaction, that it has suffered little or no injury. The plant is easily increased by cuttings. There is another species, or, perhaps, a variety of this one, which has stood some winters, in a warm situation, at Redleaf, in Kent, where it flowers in January, February, and March. (See *Gard. Mag.*, xi. p. 208.)

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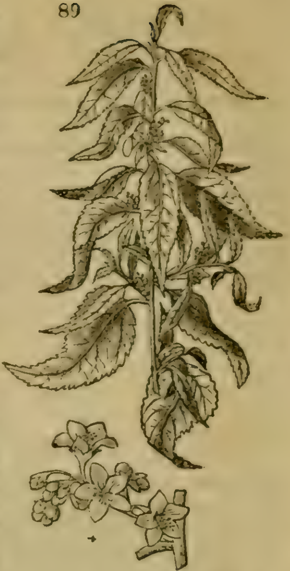

CHAP. XVII.

OF THE HARDY AND HALF HARDY LIGNEOUS PLANTS OF THE ORDER STERCULIAˋCEÆ.

This order is introduced chiefly for the sake of *Sterciùlia platanifòlia* L. (*Cav. Dis.*, 5. t. 149., and our *fig.* 90.) It is a tree, a native of Japan and China, with fine large palmate leaves, smooth on both surfaces, and upright branches without visible buds; that is, with the buds concealed like those of the walnut, or the Gymnócladus. The flowers are small and green, or greenish yellow. The tree was introduced in 1757, and, at first, treated as a green-house plant; but it has since been found to be quite hardy in the neighbourhood of London, more especially when planted against a wall. There is a tree in the Chelsea Botanic Garden 12 ft. high, which has stood out many years with only a little litter thrown round it occasionally, to protect the roots.

S. lanceolàta Cav. (*Bot. Reg.*, 1256.), from China; *S. diversifòlia* G. Don, from New Holland; *S. tomentòsa* Thunb., from Japan; *S. peltàta* G. Don, from China; are all handsome deciduous trees, with very handsome foliage, growing to the height of 20 ft.; and are probably all equally hardy with S. platanifòlia. Some of them can be purchased, in the nurseries, at from 5*s*. to 7*s*. each.

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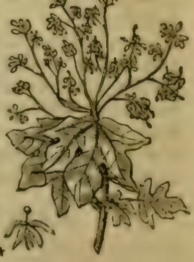

CHAP. XVIII.

OF THE HARDY LIGNEOUS PLANTS OF THE ORDER *TILIA`CEÆ*.

DISTINCTIVE Characteristics. Sepals 4 or 5, with a valvate æstivation, mostly without an involucre. Petals 4 or 5, or rarely not any. Stamens hypogynous, generally numerous, with filaments separate, and anthers 2-celled. Mostly glands between the petals and ovarium. Ovary and fruit single, of 4—10 carpels grown together; cells in the fruit, at least in some, not so many as the carpels. (*Lindley*, *Introd. to N. S.*) The species are chiefly trees and shrubs from warm climates. The only genus which is perfectly hardy is *Tília*.

GENUS I.

TI'LIA L. THE LIME TREE. *Lin. Syst.* Polyándria Monogýnia.

Identification. Lin. Gen., 660.; Dec. Prod., 1. p. 512.; Don's Mill., 1. p. 552.
Synonymes. Line Tree *Gerard*; Lind, *Anglo-Sax.*; Tilleul, *Fr.*; Linde, *Ger. and Dutch*; Tiglio, *Ital.*; Tilo, *Span.*; Lipa, *Russ.*
Derivation. In London and Wise's *Retired Gardener*, the name of *Tília* is derived from the Greek word *ptilon*, a feather, from the feathery appearance of the bracteas; but others derive it from the Greek word *tilai*, light bodies floating in the air like wool or feathers.

Gen. Char. *Calyx* 5-parted. *Petals* 5. *Stamens* numerous, free, or somewhat polyadelphous. *Ovary* globose, villous, 1-styled, 5-celled; cells 2-ovuled. *Nut* coriaceous, 1-celled 1—2-seeded, from abortion (*Don's Mill.*, i. p. 540.)—Timber trees, with mellifluous flowers, and a remarkable bractea attached to the peduncle of each of the cymes of flowers. The species are three, according to some; and more than twice that number, according to others. Our opinion is, that they may be all included under two, *T.* europæ`a, and *T.* americàna.

‡ 1. *T.* EUROPÆ`A *L.* The European, *or common*, Lime Tree.

Identification. Linn. Sp., 733.; Don's Mill., 1. p. 552.; Smith's Eng. Fl., iii. p. 16.
Synonymes. *T.* intermèdia *Dec. Prod.*, 1. 513.; *T.* vulgàris *Hayne Dend.*; *T.* europæ`a boreàlis *Wahl.*
Engravings. Eng. Bot., t. 610.; Œd. Fl. Dan., t. 553.; and our plate in Vol. II.

Spec. Char. Petals without scales. Leaves cordate, acuminated, serrated, smooth, except a tuft of hair at the origin of the veins beneath, twice the length of the petioles. Cymes many-flowered. Fruit coriaceous, downy. (*Don's Mill.*, i. p. 552.) The extensive distribution and long cultivation of this tree in Europe have given rise to the following races, or varieties, described by De Candolle and others as species; from which high authority it may be considered presumption in us to differ; but we have not done so without due consideration, and after having examined the living plants of different ages, and in different situations, with the greatest care and attention.

‡ T. *e.* 2 *microphýlla. The small-leaved European Lime Tree.*

Synonymes. *T.* microphýlla *Vent.*, *Willd*, *Dec.*, and *G. Don*; *T.* e. var. *γ L.*; *T.* ulmifòlia *Scop.*; *T.* sylvéstris *Desf.*; *T.* parvifòlia *Ehrh.*, *Hayne Dend.*; *T.* cordàta *Mill.*; Tilleul à petites Feuilles, *Fr.*; kleinblättrige Linde, or Winterlinde, *Ger.*
Engravings. Willd. Holzart, t. 106.; Engl. Bot., t. 1705.; and our plate in Vol. II.

Description, &c. Petals without scales. Leaves cordate, roundish, acuminated, sharply serrated, smooth above, glaucous, and bearded beneath on the axils of the veins, as well as in hairy blotches. Fruit rather globose, hardly ribbed, very thin, and brittle. Native of Europe, in sub-mountainous woods. In England, frequent in Essex and Sussex. (*Don's Mill.*, i. p. 552.) This variety appears to be the male linden tree of Gerard; the timber of which, he says, is much harder, more knotty, and more yellow, than the timber of the other sort; and not very different from the timber of the elm tree. This sort we conceive to have originated in inferior soils and situations; for example, in the rocky parts of the north of Sweden, and in the hilly districts of the north of Germany. This variety, according to Steven (*Nouv. Mém. de la Soc. Imp. des Nat. de Moscou*, tome iii.), is found here and there in the woods of Tauria; also in Iberia, and on this side Caucasus. It varies, he says, in a wonderful manner, in the form of the fruit, in the sinus at the base of the leaves, and in the proportion of the disk of the leaves to the petioles, as well as in the number of flowers in a cyme, colouring of the twigs, &c.; whence he agrees with Sprengel in uniting *T.* triflòra, *T.* intermèdia, &c., which are usually separated by authors. We doubt much if this, or any other variety, is indigenous in Britain; but it exists in plantations, and is recognised as a distinct variety by practical men, the wood being preferred by pianoforte-makers. Sir James Edward Smith says, "This species being planted along with *T.* europæ`a, and *T.* grandifòlia, in avenues or parks, will insure a longer succession of flowers than either of the others alone." This variety is distinguishable, at first sight, from all the others, by the smallness of its leaves, which are only about 2 in. broad, and sometimes scarcely longer than their slender footstalks. The flowers are also much smaller than in any of the other varieties; and they are very fragrant, having a scent like those of the honeysuckle. There appears to be a subvariety of this in the garden of the London Horticultural Society, under the name of *T.* parvifòlia glaúca.

‡ T. *e.* 3 *platyphy̆lla*. *The broad-leaved European Lime Tree.*

Synonymes. T. platyphy̆lla *Scop.*; *T.* cordifòlia *Bess.*; *T.* europæ`a *Desf.*; *T.* grandifòlia *Ehrh.* and *Smith*; broad-leaved downy Lime Tree; Tilleul à grandes Feuilles, or Tilleul de Hollande, *Fr.*

Engravings. Vent. Diss., p. 6. t. 1. f. 2.; Bull. Fr., t. 175.; Gærtn., 2. t. 113.; and our plate in Vol. II.

Description. Petals without scales. Leaves cordate, roundish, acuminated, sharply serrated, downy beneath, origin of their veins woolly. Branches hairy. Cymes 3-flowered. Fruit woody, downy, turbinate, with 5 prominent angles. (*Don's Mill.*, i. p. 553.) This tree is of about the same size as *T.* europæ`a, from which it is readily distinguished by its larger and rougher leaves, and, also, by its rougher bark and hispid branches. *T.* europæ`a, *T.* e. microphy̆lla, and *T.* e. platyphy̆lla, may be seen together, in a young state, in the London Horticultural Society's Garden; and, full-grown, in the avenue at Syon House: in both places they are readily distinguishable from each other, and are perfectly distinct; not, we think, as species, but as races. According to Sir James Edward Smith, *T.* platyphy̆lla is the lime tree of the south of Europe, as *T.* europæ`a is of the north; and he is of opinion that they are unquestionably distinct species. Steven (in *Nouv. Mém. &c.*, tome iii. 1834.) says, that, though *T.* platyphy̆lla is cited in the *Flora Taurico-Caucasica*, as common in Tauria and Caucasus, he never found it there, or knew of its having been observed in those regions. There is a subvariety of this sort, called *T.* e. platyphy̆lla mìnor, with leaves somewhat smaller than those of *T.* e. platyphy̆lla, but the difference is so trifling that it is not worth while keeping it distinct.

‡ T. *e.* 4 *rùbra*. *The red*-twigged *European Lime Tree.*

Synonymes. T. triflòra *Puer, in Horn. Cat.*, 2. p. 493.; *T.* corinthìaca *Bosc*; *T.* corállina

Hort. Kew.; *T.* europæ̀a β rùbra *Sibthorp*; *T.* europæ̀a γ *Smith's Flor. Brit.*, 571.; *T.* grandifòlia β *Smith's Eng. Flora*, 3. 19.

Description. This variety is distinguished by the redness of its young branches, and it may be properly considered as a subvariety of all the above races or kinds. In Sweden, where lime woods extend over the low part of the country for many miles together, the common lime tree is met with, in some places, perhaps for a mile together, with the twigs bright red, yellow in others, and in others quite green. In the park at Shardeloes, near Amersham, in Buckinghamshire, may be seen large lime trees, all apparently of the commonest kind (*T.* europæ̀a), some with yellow, others with red, and others with brown or green wood. In the garden of the London Horticultural Society there is one variety with small leaves and bright yellow wood; and another, with the large rough leaves of *T.* e. platyphýlla, and bright yellow wood. Our conclusion from these, and other facts that have come before us, is, that there is a red-twigged and yellow-twigged variety or subvariety of *T.* europæ̀a, of *T.* e. microphýlla, and of *T.* e. platyphýlla; and that *T.* rùbra *Dec.* can be nothing more than a variety of *T.* e. platyphýlla.

‡ T. *e.* 5 *laciniàta.* *The cut-*leaved *European Lime Tree.*

Synonymes. *T.* platyphýlla laciniàta *Hort.*
Engravings. Our plate in Vol. II.

Description. The leaves are smaller than those of the common species, and deeply and irregularly cut and twisted, scarcely two on the tree being alike. This variety is seldom seen of a large size; as might be expected from the diminished power of the leaves, in consequence of their diminished surface. We have never heard of its attaining a greater height than 30 ft.

‡ T. *e.* 6 *aúrea.* *The golden-*twigged *European Lime Tree.* — Differing from the species in the yellowness of its twigs; and, apparently, not so vigorous in its growth as any of the other varieties, except *T.* e. laciniàta. (See our plate in Vol. II.)

‡ T. *e.* 7 *p. aúrea.* *The golden-*twigged *broad-leaved European Lime Tree.*—This differs from the common broad-leaved lime in no other respect than in the yellow colour of its twigs. It is, in winter, a very distinct and very handsome variety, and may be procured in some of the London nurseries. There is a small tree in the London Horticultural Society's Garden.

‡ T. *e.* 8 *dasýstyla.* *The hairy-styled European Lime Tree.* *T.* dasýstyla *Steven.* — This is described as having petals without scales; leaves smooth, somewhat hairy at the base beneath; axils of veins bearded; style tomentose. It is found on the south-west coast of Tauria, at the base of the mountain Castel Dagle, where there is one tree near the public road. Steven considers it as satisfactorily distinct in the form of its fruit, and especially in the hairiness of its style. To us it appears that this variety bears the same relation to the species that *C*ratæ̀gus *O*xyacántha eriocárpa does to the species.

Other Varieties. There is a variety with variegated leaves, but it is such a ragged ill-looking plant that we deem it altogether unworthy of culture. There are some names of varieties in nurserymen's catalogues, which we have not thought worth a detailed notice; the slightest deviation being often eagerly seized on for the sake of producing something new. In the Bollwyller *Catalogue* for 1833, we have *T. a*spleniifòlia nòva, which, we presume, is a subvariety of *T.* europæ̀a laciniàta; and M. Baumann informs us that they have lately discovered a new variety of *T.* e. aúrea in a forest in their neighbourhood. In the Botanic Garden of Antwerp, there is a plant named *T.* europæ`a rubicaúlis, which is said to be quite different from *T.* europæ`a rùbra. There can be no doubt that where several of the varieties are growing together, and ripen seeds, these seeds will produce different new sorts, as the result of cross-fecundation. In a work published in 1750 at Leyden, entitled *Les Agrémens de la Campagne, &c.*, the author recommends continuing all the different sorts of the lime by layers: because, says he, those which are raised from seed come up of different species; and almost all hybrids, such as the poplar-leaved lime, or the birch-leaved lime, which never arrive at the size of large trees, or become finely furnished with leaves. Those which come up with red bark, he says, grow very rapidly for a while, as do the yellow-barked varieties, but neither do they ever form large trees. The only seedlings that should be planted, with a view to this end, are such as have green leaves and shoots. (p. 207.)

Geography of T. *europæ`a and its Varieties.* *T.* europæ`a appears to be confined to the middle and north of Europe. The variety *T.* e. platyphýlla is found on the Alps of Switzerland, and the north of Italy; and also in Spain, Portugal, and Greece. *T.* europæ`a and *T.* microphýlla appear to be indigenous chiefly in the north of Germany, in Russia, and in Sweden. We have already (p. 24.) expressed our doubts as to the genus *T*ília being indigenous in Britain; though, as Sir J. E. Smith has observed, all the varieties (species with him) are naturalised, if not all originally indigenous. Ray seems to have thought that *T.* e. microphýlla was, or might be, indigenous; but he was of a different opinion with respect to the broad-leaved variety. He says, speaking of the latter kind, "I think that Turner and Gerard err in saying that this kind grows plentifully in Essex; for, although I am an inhabitant of Essex, I have never seen the *T*ília fœ'mina vulgàris platyphýllos [which, according to Smith, is a synonyme of *T.* europæ`a (*Eng. Flora*)] growing spontaneously there, or elsewhere in England. What we frequently find with us, in woods and hedges," he says, "is the *T*ília minòre fòlio" [which, according to Smith, is a synonyme of *T.* parvifòlia. (*Eng. Flora.*)]. "This last species," Ray continues, "is called in Lincolnshire, by the rustics, bast; because ropes are made from its bark. It flowers later than the other, and ripens its seeds more perfectly." Sir J. E. Smith gives as a native habitat of *T.* europæ`a, "woods and hedges upon grassy declivities:" of *T.* e. platyphýlla, "Whitstable, Surrey; and near Dorking; on the banks of the Mole, near Boxhill; and a few other places in Surrey, Norfolk, and Oxfordshire." According to Watson, *T.* europæ`a is common all over Britain; and in the south-western, north-eastern, and north-western counties of Ireland: *T.* e. platyphýlla is found in the north-eastern parts of England, and in the southern counties of Scotland: and *T.* e. microphýlla is found in the south-eastern and north-eastern counties of England, and north-western counties of Scotland. Mr. Edwin Lees, Hon. Sec. of the Natural History Society of Worcester, informs us that at Shawley, eight miles north-west of Worcester, there is a wood, remote from any old dwelling or public road, of above 500 acres in extent, the greater part of the undergrowths of which is composed of *T.* e. microphýlla. He also states that, in the same part of the county, there are some trees estimated to be upwards of 300 years old. So extensive a tract in Britain covered with the lime tree, we had before never heard of, and the circumstance has considerably diminished our doubts as to the tree being truly indigenous. In the *Nouveau Du Hamel*, *T.* europæ`a is said to be found wild in Denmark, Sweden, Bohemia, and throughout Europe generally. Pallas states that it is found through the whole of Russia, and great part of Siberia. *T.* e. platyphýlla is said to inhabit Sweden, and most parts of Europe, as far south as the alpine regions of Spain.

History. The common lime tree appears to have been known to the Greeks and Romans. The tree, according to Theophrastus, is of both sexes, which are totally different as to form; probably referring to the small-leaved and large-leaved varieties. The leaves, he says, are sweet, and used as fodder for most kinds of cattle. The tree was highly esteemed by the Romans for its shade; and, according to Pliny, for the numerous uses to which its wood might be applied. In modern times, the lime tree was one of the first to attract the notice of writers on plants; and, accordingly, it occupies a considerable space in the works of L'Obel, Gerard, Ray, and the various dendrological authors previously to the time of Linnæus, who describes only two species, *T.* europæ'a and *T.* americàna; but M. Ventenat, in 1798, describes three European species and three American ones. De Candolle has described ten species. Evelyn, speaking of the lime tree, says, "It is a shameful negligence that we are no better provided with nurseries for a tree so choice, and so universally acceptable. We send, commonly, for this tree into Flanders and Holland, while our woods do in some places spontaneously produce them." The lime tree has long been a favourite tree for avenues and public walks; it is planted in the streets of some of the principal towns of France, Holland, and Germany; and it forms avenues to country seats, both on the Continent and in Great Britain. "The French," Du Hamel says, "growing tired of the horsechestnut for avenues, adopted the lime for that purpose, in the time of Louis XIV.; and, accordingly, the approaches to the residences of the French, as well as English, gentry of that date are bordered with lime trees"; and Fénélon, Sir J. E. Smith observes, "in conformity to this taste, decorates, with 'flowery lime trees,' his enchanted Isle of Calypso." The lime trees in St. James's Park are said to have been planted at the suggestion of Evelyn; probably with a view to the improvement of the air, and to avert, in part, the evils pointed out in his *Fumifugium.* The Dutch plant the lime in towns, along their widest streets, and by the sides of their canals; and the whole country is perfumed by their flowers during the months of July and August. In Miller's time, the tree began to be little esteemed, on account of its coming into leaf late in the spring, and beginning to decay early in autumn; more especially when planted in a dry soil. Since the modern style of laying out grounds has rendered straight avenues unfashionable, the lime tree has not been nearly so much planted as formerly; and its chief use at present, both in Britain and on the Continent, is for planting public walks and promenades.

Properties and Uses. The wood of the lime tree is of pale yellow or white, close-grained, soft, light, and smooth, and not attacked by insects. It is used by pianoforte-makers for sounding-boards, and by cabinet-makers for a variety of purposes. It is turned into domestic utensils of various kinds; carved into toys, and turned into small boxes for the apothecaries. The most elegant use to which it is applied is for carving, for which it is superior to every other wood. Many of the fine carvings in Windsor Castle, Trinity College Library at Cambridge, and in the Duke of Devonshire's mansion at Chatsworth, are of this wood. It is supposed by some, that the blocks employed by Holbein for wood-engravings were of this tree. The wood is said to make excellent charcoal for gunpowder; even better than alder, and nearly as good as hazel. Baskets and cradles were formerly made from the twigs; and shoemakers and glovers are said to prefer planks of lime tree for cutting the finer kinds of leather upon. The leaves of the lime tree, in common with those of the elm and the poplar, were used, both in a dried and in a green state, for feeding cattle, by the Romans; and they are still collected for the same purpose in Sweden, Norway, Carniola, and Switzerland; though in Sweden, Linnæus says, they communicate a bad flavour to the milk of cows. One of the most important uses of the lime tree, in the north of Europe, is that of supplying material for forming ropes and mats; the latter of which enter extensively into European commerce. The Russian peasants weave the bark of the young shoots for the upper parts of their shoes, the outer bark serves for the soles; and they also make of it, tied together with strips of the inner bark, baskets and boxes for domestic purposes. The outer bark of old trees supplies them, like that of the birch, with tiles for covering their cottages.

Ropes are still made from the bark of the tree in Cornwall, and in some parts of Devonshire; as appears by the *Agricultural Reports* of those counties; and this, according to Ray, was formerly the case in Lincolnshire. The manufacture of mats from the inner bark of the lime tree, however, is now chiefly confined to Russia, and some parts of Sweden. Trees of from 6 in. to 1 ft. in diameter are selected in the woods; and in the beginning of summer, when, from the expansion produced by the ascending sap, the bark parts freely from the wood, it is stripped from the trees in lengths of from 6 ft. to 8 ft. These are afterwards steeped in water, till the bark separates freely into layers; it is then taken out and separated into ribands or strands, which are hung up in the shade, generally in the wood where the tree grew from which they were taken; and, in the course of the summer, they are manufactured into the mats so much in use by gardeners and upholsterers, and for covering packages generally. The fishermen of Sweden make nets for catching fish of the fibres of the inner bark, separated, by maceration, so as to form a kind of flax; and the shepherds of Carniola weave a coarse cloth of it, which serves them for their ordinary clothing. The trees from which the bark is taken are cut down during the same summer, collected into open places in the woods, cut into short lengths, and burned in heaps, so as to form charcoal. The sap of the lime tree, drawn off in spring, and evaporated, affords a considerable quantity of sugar; and Adanson suggested the idea of employing it for this purpose in France, along with the sap of the birch and the maple. The honey produced by the flowers is considered superior to all other kinds for its delicacy, selling at three or four times the price of common honey; and it is used exclusively in medicine, and for making some particular kinds of *liqueurs*, more especially Rosoglia. This lime tree honey is only to be procured at the little town of Kowno, on the river Niemen, in Lithuania, which is surrounded by an extensive forest of limes. An account of this forest, of the mode of managing the bees in it, and of disposing of the honey, &c., was given to Sir John Sinclair by the botanist Hove, and will be found printed as an appendix to the *Husbandry of Scotland*. The Jews of Poland produce a close imitation of this honey, by bleaching the common sort in the open air during frosty weather. (See Bright's *Travels in Hungary*.) The fruit of the lime tree had long been thought of little use, till Missa, a physician of the faculty of Paris, by triturating it, mixed with some of its flowers, succeeded in procuring a butter, perfectly resembling chocolate; having the same taste, and giving the same paste, as the cocoa. This was in the time of Frederick the Great; who, feeling a greater interest in the discovery than the French, who were in possession of plantations of the cocoa in their colonies, engaged the chemist Marcgraf to prove the observations of Missa, which he did entirely to the satisfaction of Frederick; but, unfortunately, it was found that the lime tree chocolate did not keep. On this Ventenat remarks, that, if the subject had been pursued a little further, and the fruits of some of the American species of limes taken, the success would probably have been complete. In landscape-gardening the principal use of the lime is as a detached tree on a lawn, or in scenery which is decidedly gardenesque; because, from the symmetrical and regular form of the tree, it is unfitted for grouping with other trees in the picturesque manner. London and Wise recommended the lime tree, as preferable to the elm, for sheltering gardens or orchards; because the roots do not, like those of the elm, spread out and impoverish all around them. In the *Retired Gardener*, the chief use of the tree is said to be for bowers, or covered ways 18 ft. or 20 ft. high: the lime being trained to a shelter roof. Evelyn commends the lime for its "unparalleled beauty" for walks; "because" he says, "it will grow in almost all grounds, lasts long, soon heals its wounds when pruned, affects uprightness, stoutly resists a storm, and seldom becomes hollow." Scattered trees of it harmonise well with immense masses of Grecian or Roman architecture; but it is less suitable for the narrow perpendicular forms of the Gothic. For architectural gardening it is well adapted, from the patience with which it bears the knife or the shears. In some of the public gardens of recreation on the Continent, and especially in those in the neighbourhood of Paris and Amsterdam, there are very imposing colonnades, arcades, walls, pyramids, and other architectural-looking masses, formed of this tree.

Soil and Situation. A deep and rather light soil is recommended for the lime tree by Du Hamel (*Traité des Arbres*); but the largest trees are generally found in a good loamy soil. In Lithuania, where the tree is more abundant, and of a larger size, than it is either in Russia or Poland, the soil, as we particularly remarked about Kowno, when in that country in 1813, is rather a clayey loam than a sandy one. This agrees with an observation of Du Hamel, in another of his works (*Exploitation des Bois*), that the lime tree gets to a prodigious size in an argillaceous soil inclining somewhat to sand, and rather moist. In dry situations, the tree never attains a large size, and it loses its leaves earlier than any other tree. Being a tree of the plains, rather than of the mountains, it does not appear suitable for exposed surfaces: but it requires a pure air rather than otherwise; for, though it is found in towns on the Continent, and sparingly so in Britain, the smoke of mineral coal seems more injurious to it than it is to the platanus, the elm, or some other trees.

Propagation and Culture. It is seldom propagated otherwise than by layers, which are made, in the nurseries, in autumn and winter, and which become rooted, so as to admit of being taken off, in a year. The tree, in Britain at least, appears seldom to ripen its seeds; but Evelyn states that he received many of these from Holland, and that plants may be raised from them; though, he says, with better success from suckers. Du Hamel says that the lime tree may be raised from seeds, which ought to be sown immediately after being gathered; because, if they are preserved dry till the following spring, they will often not come up till the second year. If, however, the seeds are mixed with sand, or with soil, not too dry, and kept in that state till the following spring, they will generally come up the first year. Owing to the slowness of the growth of plants raised from seeds, Du Hamel states, the French gardeners, when they want a supply of young lime trees, cut over an old one close by the surface of the ground, which soon sends up a great number of shoots: among these they throw in a quantity of soil, which they allow to remain one, or two, or three years; after which they find the shoots well rooted, and of a sufficient height and strength to be planted at once where they are finally to remain. This mode is still practised in France and Belgium, both with the lime and the elm. (See *Agrémens de la Campagne*, liv. ii.) We have seen the plants, or shoots, 15 ft. or 20 ft. high, with very few roots when they were first taken off: but all the branches being cut off close to the stems, and the stems shortened to 6 ft. or 7 ft., and the roots also pruned, they are planted, and seldom fail to grow; all the young shoots produced the first season after planting being removed, except one to serve as a leader. The lime tree bears transplanting when of a considerable size; but, when it is grown in the nurseries for this purpose, it ought always to be taken up and replanted every two or three years. A tree which has stood some years without being removed should always have the roots cut round, at 3 ft. or 4 ft. from the stem, a year before removal, for the purpose of stunting the growth, both of the head and roots, and of forming smaller roots and fibres. Evelyn mentions some very large lime trees which the prince elector took out of his forests at Heidelberg, to a steep hill "exceedingly exposed to the heat of the sun, and that in the heat of summer. They grow behind that strong tower on the south-west and most torrid part of the eminence, being a dry, reddish, barren earth; yet do they prosper rarely well: but the heads were cut off, and the pits into which they were transplanted were (by the industry and direction of Monsieur De Son, a Frenchman, and an admirable mechanic, who himself related it to me) filled with a composition of earth and cow-dung, which was exceedingly beaten, and so diluted with water, that it became almost a liquid pap. It was into this that he plunged the roots, covering the surface with the turf: a singular example of removing great trees at such a season, and therefore taken notice of here expressly." This operation was probably performed before midsummer, when the trees, not having spent their vital or growing force for the season, might still send out shoots and fibrous roots, which would preserve them alive till the following year, when they would probably grow freely. If it had not been intended that they should grow a little the first year, the puddle formed with so much care would have been unnecessary.

Statistics. We have received the dimensions and age of some hundreds of lime trees, with notices of the soil and situation in which they grow, in different parts of Britain and the continent of Europe: from which we shall select but a very few examples, the tree being sufficiently well known.

Tília europæ`a in the Environs of London. The oldest tree that we know of is at Fulham Palace. The head of the tree has suffered great injury from time and the weather; and is not remarkable either for its height or breadth; but the trunk is between 7 ft. and 8 ft. in diameter. At Kenwood there are trees 90 years planted, which are 90 ft. high. At Syon there are trees of *T.* europæ`a, of *T.* e. microphýlla, and *T.* e. platyphýlla, which are supposed to be about 80 years planted, and are 75 ft. high.

Tília europæ`a South of London. In Kent, at Cobham Hall, there is a tree 97 ft. high, and above 9 ft. in diameter, which contains 136 ft. of timber. At Knowle there is an immense lime tree, the dimensions of which have not been sent us; but when we saw it, in 1820, it covered, as we estimated at the time, nearly a quarter of an acre of ground. The lower branches, which extended to a great length, had rested with their extremities on the soil, rooted into it, and sent up a circle of young trees, which surrounded the old or central one. The outer branches of this outer row of trees had, in their turn, stretched out, rested on the ground, and thrown up a second circle of trees, which, at the time we saw them, were from 20 ft. to 30 ft. high. The tree stands on a lawn in an ancient geometrical garden; and must be at least two centuries old; the soil is a deep sandy loam. At Ashtead, in Surrey, there are trees 95 ft. high, with trunks from 7 ft. to 8 ft. in diameter: the soil is an adhesive loam on chalk.

Tília europæ`a North of London. In Berkshire, at Ditton Park, there is a tree which is known to be upwards of 200 years old; and, though it is only 80 ft. high, yet the diameter of the trunk, at 1 ft. from the ground, is 22 ft. 10 in.; it grows on strong loam on gravel, and is supplied with abundance of water, from this gravel being on a level with the Thames. In Hertfordshire, at Moor Park, there are several magnificent lime trees, one of which has been beautifully portrayed by Mr. Strutt; nineteen large branches, 6 ft. or 8 ft. in girt, strike out horizontally from 67 ft. to 70 ft. in length, and these support three or four upright limbs; the tree is in full vigour, and its branches droop down and rest on the ground; the trunk girts 23 ft. 3 in.; and the head is 122 ft. in diameter; it is nearly 100 ft. high; and contains, by actual measurement, 875 ft. of timber. In Norfolk, at Merton Park, there is a tree 75 ft. high, which, at 1 ft. from the ground, is about 6 ft. in diameter. In Somersetshire, at Brockleby Hall, are three lime trees with trunks from 15 ft. to 17 ft. in circumference, and 60 ft. high. In Staffordshire, at Enville, are some of the finest trees of *T.* europæ`a and *T.* e. microphýlla in England; they are nearly 100 ft. high, and they are completely feathered to the ground. In Warwickshire, at Crompton, a tree, between 60 ft. and 70 ft. high, has a trunk measuring, at 4 ft. from the ground, 15 ft. in girt; from 9 ft. to 12 ft. high the trunk divides into six upright branches, each from 50 ft. to 60 ft. high. In Worcestershire, between Horford and Ombersley, on the edge of a small pool, there is a tree of *T.* e. microphýlla estimated at upwards of 300 years of age; it is 70 ft. high, and the trunk, at 8 ft. from the ground, 30 ft. in circumference. There are several other trees of the same variety in the neighbourhood estimated to be as old, and nearly as large; at Croome, *T.* e. platyphýlla, 40 years planted, is 70 ft. high, with a trunk 2½ ft. in diameter at 1 ft. from the ground, and the diameter of the space covered by its branches 70 ft., the soil is a strong red loam. In Yorkshire, at Bolton, are two lime trees of large size, supposed to be *T.* e. microphýlla, noticed by Whitaker, in his *History of Craven*, which still exist. In the Park at Thrickleby Hall, there is a lime tree with a branch like a teapot handle, noticed by Sir J. E. Smith, in his correspondence.

Tília europæ`a in Scotland. At Hopeton House, *T.* e. rùbra, 100 years planted, is 70 ft. high, with a trunk 3½ ft. in diameter at 1 ft. from the ground, and the diameter of the space covered by the branches 33 ft.: it stands in an avenue among several others of about the same height. At Gordon Castle, in Aberdeenshire, there are trees above 80 ft. high, and with trunks above 5 ft. in diameter at 1 ft. from the ground. In Ayrshire, at Roseneath Castle, there are several trees with trunks 3½ ft. in diameter, and from 75 ft. to 80 ft. high. In Perthshire, at Taymouth Castle, there is a noble avenue of lime trees, which has been 100 years planted, and the trees are 82 ft. high and upwards; and 6 ft., or more, in diameter, at a foot from the ground. In the Perth Nursery there is a tree of the *T.* e. platyphýlla minor, 60 years planted, 66 ft. high; the diameter of the trunk, at 1 ft. from the ground, 28 in.; and that of the space covered by its branches 42 ft. In general, when the soil is properly prepared, the tree grows at the average rate of 2 ft. a year, for the first 12 or 15 years, in the milder parts of Scotland.

Tília europæ`a in Ireland. In the park at Charleville Forest, county of Meath, there is a tree 110 ft. high, with a trunk, at 1 ft. from the ground, 5½ ft. in diameter: it grows in brown loam resting on a limestone gravel, in an open situation. In the plantations on the same estate, the tree attains the height of from 25 ft. to 30 ft. in 10 years. At Florence Court there is a tree, 38 years planted, 46 ft. high, with a trunk 4 ft. in diameter at 1 ft. from the ground, and the diameter of the space covered by the branches 46 ft.; the soil a retentive loam. At Moira, near Belfast, *T.* e. platyphýlla minor has attained the height of 85 ft., with a trunk 4 ft. in diameter at 1 ft. from the ground; the branches covering a space of 60 ft. in diameter.

Tília europæ`a in Foreign Countries. In France, in the Paris Garden, *T.* e. platyphýlla, 120 years planted, is 75 ft. high, and the space covered by its branches is 87 ft. in circumference; at Mereville, *T.* e. microphýlla, 60 years planted, is 60 ft high; its trunk, at 1 ft. from the ground, is 5 ft in diameter; and the diameter of the space covered by its branches is 40 ft.; in the botanic garden at Toulon, *T.* europæ`a, 40 years planted, is 50 ft. high, with a trunk 4 ft. in diameter; in the public walks at Nantes, *T.* europæ`a, 70 years planted, is 80 ft. high, with a trunk 4½ ft. in diameter. In Belgium and Holland this species and its varieties abound: the largest are in "the wood" at the

Hague, some of which are between 70 ft. and 80 ft. in height, with trunks between 3 ft. and 4 ft. in diameter. In the neighbourhood of Ghent and of Brussels, the tree is seldom to be found above 60 ft. high; and in the native forests, where it is indigenous, not often so much. In Austria, in the park at Schönbrunn, there is a lime tree, 70 years planted, which is 75 ft. high; at Laxenburg, 60 years planted and 55 ft. high; and many others of similar heights, or higher, are to be found. In Wirtemberg, at Neustadt an der Linde, is a tree, from which the town takes its name, of unknown age, and great size; the trunk girts 54 ft., and rises 15 ft. high before the branches begin; the whole height of the tree is about 100 ft. The branches extend to nearly 100 ft. on each side of the trunk, and they are supported by 108 pillars, some of which are of wood, and some of stone; there is a place of entertainment formed in the head of the tree, which is ascended to by a flight of steps. In the hollows of the branches, earth has been placed, and gooseberry bushes planted, which bear fruit which is sold to visitors. The avenue of lime trees in Berlin (*Der Linden Strasse*) is celebrated. In Denmark, *T.* europæ'a and *T.* e. microphy̆lla attain the height of from 60 ft. to 70 ft. in the royal gardens in the neighbourhood of Copenhagen. In Sweden, in the botanic garden at Lund, there is a lime tree which is 60 ft. high, with a trunk 3 ft. 3 in. in diameter. In Switzerland, according to Cox, and to M. Alphonse De Candolle, p. 160., there are some very large lime trees. One, near Morges, has a trunk 24 ft. 4 in. in circumference; another, near the great church at Berne, which was planted before the year 1410, is 36 ft. in girt; and a third, near Morat, which is, probably, one of those referred to by M. De Candolle, is not less than 90 ft. high, and of the same girt as the last. In p. 162. some other remarkable lime trees are mentioned. Mr. Strutt, the most celebrated artist in dendrography which this country has ever produced, and who is now (January, 1836) in Switzerland, has, we believe, taken sketches of all these trees, which he will, in all probability, engrave and publish on his return to England.

Commercial Statistics. The common lime is propagated for sale in all the European nurseries, and in some of those of North America. The price varies according to the size of the plants. In London, plants from layers, 3 ft. to 4 ft. high, cost 20*s.* a hundred; from 5 ft. to 6 ft. high, 30*s.* a hundred; and from 7 ft. to 10 ft. high, 2*s.* 6*d.* each. At Bollwyller, plants of the common lime are 1 franc each; of the common yellow-twigged variety 2 francs each; and of the cut-leaved variety, which, we believe, was originally brought from that nursery, 5 francs each. In New York, ?.

♅ 2. *T.* (EUR.) A'LBA *Waldst. & Kit.* The white-*leaved* European Lime Tree.

Identification. Waldst. and Kit. Pl. Hung.; Wats. Dendr. Brit.; Hort. Kew., 2. p. 230.; Hayne Dend., p. 113.; Don's Mill., 1. p. 553.

Synonymes. *T.* americàna *Du Roi*; *T.* argéntea *Desf.*, *Dec. Cat. Hort. Monsp.*, and *Dec. Prod.*, I. p. 513.; *T.* rotundifòlia *Vent.* and *N. Du Ham.*; *T.* tomentòsa *Mœnch.*

Engravings. Waldst. and Kit. Pl. Hung., 1. t. 3.; Vent. Diss., t. 4.; N. Du Ham., t. 52.; Wats. Dend., t. 71.; and our plate in Vol. II.

Spec. Char. Petals each with a scale at the base inside. Leaves cordate, somewhat acuminated, and rather unequal at the base, serrated, clothed with with white down beneath, but smooth above, 4 times longer than the petioles. Fruit ovate, with 5 obscure ribs. (*Don's Mill.*, i. p. 553.) Fruit evidently ribbed. (*Steven*, in *Nouv. Mém. de la Soc. Imp. des Naturalistes de Moscou*, tome iii. p. 103.) A native of Hungary; with yellowish and very fragrant flowers, produced from June to August. Introduced in 1767.

Description. Our own opinion is, that this is nothing more than a very distinct race of the common lime; notwithstanding the circumstance of its having scales to its petals, as noticed by Watson in his *Dendrologia*, which no one of the other varieties of *T.* europæ'a is said to possess. Even allowing this structure to be permanent in the Hungarian lime, the tree bears such a general resemblance to *T.* europæ'a in all its main features, that it seems to us impossible to doubt the identity of their origin. We are strengthened in this opinion by the circumstance of its being found only in isolated stations in the Hungarian forests. We have, however, placed this lime by itself, rather than among the other varieties; because, from the whiteness of its foliage, it is far more obviously distinct than *T.* e. platyphy̆lla or *T.* e. microphy̆lla. The tree is at once distinguishable from all the other species and varieties by this white appearance, even at a considerable distance, and by the strikingly snowy hue of its leaves when they are ruffled by the wind. Its wood and shoots resemble those of the common lime; but it does not attain the same height as that tree. At High Clere, where a number of plants of this species are sprinkled along the approach road, its line of direction may be traced at some miles' distance, through the apparently dense forest, by their white tops appearing at intervals among the other trees.

Geography, History, &c. The white lime was discovered by Kitaibel in the woods of Hungary, where it is rare; it was also seen by Olivier near Constantinople. It was sent to Gordon, at Mile End, in the year 1767; whence it passed into other nurseries, and has since been rather extensively cultivated, though not so much so as it deserves from its very striking appearance. Twelve years after it was introduced into England, we are informed in the *Nouveau Du Hamel*, printed in the time of the French Republic, that "the citizens Thouin and Cels received some plants from Kew, and propagated them with success; the former in the garden of the Museum, and the other in his nursery at Arcueil. Some of these plants grew with such vigour, that, in the 6th and 7th years of the Republic, citizen Thouin sowed their seeds, and raised several young plants from them." The tree alluded to in the Paris Garden is now according to the Return Paper sent to us by Professor Mirbel, 55 ft. high, and its branches cover a space of 63 ft. in diameter. It is propagated in the same manner as the common species, and requires a similar soil and situation. When first introduced, it was propagated by grafting on *T.* e. platyphýlla; and this is still the practice in some nurseries, especially in Continental ones.

Statistics. There is a good specimen of the white lime in the Kew arboretum, and a fine tree at Walton upon Thames, 60 ft. high. There are also a great many at High Clere, in Berkshire, some of which, in 36 years, have attained the height of 60 ft., with diameters of from 1 ft. 6 in. to 2 ft., on a retentive shallow soil on chalk. There are some good specimens at Deepdene, also on chalk. One at Croome, in Worcestershire, only 30 years planted, on a loamy soil, has attained the height of 50 ft., with a trunk 2 ft. in diameter. One in the Glasnevin Botanic Garden, 35 years planted, is 35 ft. high; and, in the principal botanic gardens on the Continent, there are trees of from 30 ft. to 50 ft. in height. Plants, in the London nurseries, cost 2*s.* each; at Bollwyller, 1 franc 50 cents; at New York, ?.

‡ T. (*? e.*) *a. petiolàris* Dec., *the* long-*petioled*-leaved *Lime Tree*, described by De Candolle from dried specimens without flower or fruit, is, probably, only a variety of *T.* álba. He has placed it in one of two sections in which the species have the petals each with a scale at its base, inside. It is said to have leaves cordate, acuminated, twice the length of the petioles, serrated, smooth above, but white beneath from close-pressed down. It is said to be cultivated in the gardens of Odessa, but has not yet been introduced into England. Steven has stated (*Nouv. Mem. de la Soc. Imp. des Nat. de Moscou*, tome iii. p. 104.), that *T.* petiolàris *Dec.* certainly belongs to *T.* argéntea [*T.* e. álba]; for the length of the petioles varies often upon the same branch, not only in this, but in all species of Tilia; wherefore Sprengel has judiciously omitted it from his *Systema.*

‡ 3. *T.* AMERICA`NA *L.* The American Lime Tree.

Identification. Lin. Sp., 733.; Hort. Kew.; Willd. Spec.
Synonymes. *T.* glàbra, *Vent.*; *T.* caroliniàna *Wangenh.*; *T.* canadénsis *Michaux*; *T.* glàbra *Dec.*, *Hayne's Dendr.*, and *Don's Mill.*; the smooth-leaved, or black, Lime Tree, and Bass Wood, *Amer.*
Engravings. Vent. Diss., t. 2.; Wats. Dendr. Brit., t. 134.; and our plate in Vol. II.

Spec. Char. Petals each with a scale at the base, inside. Leaves profoundly cordate, abruptly acuminate, sharply serrated, somewhat coriaceous, smooth. Petals truncate and crenate at the apex, equal in length to the style. Fruit ovate, somewhat ribbed. (*Don's Mill.*, i. p. 553.) Canada. Yellowish-white flowers. July and August. 1752. On a general view of the trees, the most obvious external differential characteristics of the European and American limes appear to us to be, that the former have regularly cordate, and the latter obliquely cordate, leaves. The other American limes we consider to be nothing more than varieties of this species.

Description. The American lime, in its native country, attains the height of 80 ft. or upwards, with a straight uniform trunk, having an ample finely tufted summit. In England, there are some specimens of from 50 ft. to 60 ft. in height: in summer, these are readily distinguished from the European limes by the largeness of the leaves, which are heart-shaped, acutely pointed, deep green and glabrous on their upper sides, and pale green beneath. Some of the leaves have a tendency to be slightly pubescent; but they are generally smooth and shining. The flowers, which are large, appear, in Canada, in June and July; but, in England, not till the end of July, or the beginning of August, when those of the common sort are decaying. In winter, this species is readily recognised by the robust appearance of the trunk and branches, and by the dark-brown colour of the bark on the young shoots. This circumstance alone is a very marked distinction; and has, no doubt, procured for the species the name of the black lime tree. The largest tree, that we know of, of this species is at White Knights, near Reading: it is about 60 ft. high; and, at a distance, the tufting of the masses has a very singular appearance.

Geography, History, &c. This species is found in Canada, and in the northern parts of the United States: it is less common towards the south; and, in Virginia, the Carolinas, and Georgia, it is found only on the Alleghany Mountains. It is abundant in Tenessee, on the borders of Lake Erie and Lake Ontario, on loose, deep, fertile soil. The wood of this tree is white and tender; and, in the northern states of America, where the tulip tree does not attain a timber size, it is used for the panels of carriage bodies, and the seats of chairs. On the Ohio, the images affixed to the prows of vessels are made of this wood; and the inner bark is formed into ropes, as that of the *T.* europæ̀a is in the north of Europe. This lime was cultivated by Miller in 1752, but has not been very extensively distributed. There are trees of it of 10 years' growth in the London Horticultural Society's Garden; and it is propagated, generally by grafting, in some of the British and Continental nurseries. Price, in London, 2*s.* 6*d.* a plant; at Bollwyller, 1 franc 50 cents; and at New York, 50 cents.

‡ T. *a.* 2 *laxiflòra.* *The loose*-cymed-*flowered American Lime Tree.*

Synonyme. *T.* laxiflòra *Michx.*, *Pursh*, *Dec.*, *Hayne's Dendr.*, and *Don's Mill.*

Description, Geography, &c. Petals each with a scale at the base, inside. Leaves cordate, gradually acuminated, serrated, membranaceous, smooth. Cymes loose. Petals emarginate, shorter than the style. Fruit globose. (*Don's Mill.*, i. p. 553., adapted.) A most distinct species, according to Pursh. G. Don observes that it is generally confounded with *T.* glàbra; which, if the trees in the London Horticultural Society's Garden be correctly named, is not to be wondered at: for their general resemblance is so great, that we have no doubt of their being essentially the same species, notwithstanding the comparatively loose cymes of the flowers, which, however, we have never seen; no plants of this variety, that we are aware of, having yet flowered in Britain. This variety is said to be found from Maryland to Georgia, near the sea-coast, where it grows to the height of 50 ft., and produces its yellowish-white sweet-scented flowers from May to July. It was introduced into England in 1820, and is but sparingly cultivated. There is a plant 6 ft. or 8 ft. high in the London Horticultural Society's Garden.

‡ T. *a.* 3 *pubéscens.* *The pubescent*-leaved *American Lime Tree.*

Synonymes. *T.* pubéscens *Hort. Kew.*, *Willd.*, *Dec.*, *Don's Mill.*, *Vent.*, *Michaux*, and *Hayne's Dendr.*; *T.* caroliniàna *Mill.*; *T.* americàna *Walt.*
Engravings. Vent. Diss., p. 10. t. 3.; Wats. Dendr., t. 135., and our plate in Vol. II.

Description. Petals each with a scale at the base inside. Leaves truncate at the base, somewhat cordate and oblique, denticulately serrated, pubescent beneath. Petals emarginate, shorter than the style. Fruit globose, even. (*Don's Mill.*, i. p. 553.) This variety is of much less vigorous growth than the preceding; the leaves are much smaller, and the branches more slender. The leaves are most pubescent after their first expansion: as they increase in size, a part of the pubescence falls off, and the hairs which remain form little starry tufts. The colour of the bark is dark, and shows that it is more nearly allied to *T.* americàna than to *T.* a. laxiflòra. It is a native of the southern parts of the United States and the Floridas, where it grows on the borders of rivers and large marshes, where the soil is cool and rich, and not subject to inundation. It is the only variety found in the maritime parts of Carolina and Georgia. Michaux found it principally in the neighbourhood of Charleston, growing to the height of 40 ft. or 50 ft., and having the general appearance of the common American species. Its leaves, he says, differ widely in size, according to the exposure in which they grow: in dry and open places they are only 2 in. in diameter; but in cool and shaded situations they are twice that size. The flowers, which resemble those of the common American species, appear in June, and they vary in the same proportion as the leaves. Seeds of this variety were brought to England by Catesby in 1726; but it does not appear to have been much cultivated. There is a tree of it in the arboretum at Kew, one in the London Horticultural Society's Garden, and one at Messrs. Loddiges's; and it may be found in a few of the principal nurseries. In New York, the price is 50 cents a plant.

Ŧ T. *a.* 4 *pubéscens leptophýlla. The thin-leaved pubescent American Lime Tree.*

Synonymes. *T.* pubéscens leptophýlla *Vent.*; *T.* mississippénsis *Desf.*

Description. This variety is described by Ventenat as having very thin leaves, with only a few fine serratures. De Candolle doubts whether it may not prove a distinct species. There is a plant bearing this name in the garden of the London Horticultural Society, which closely resembles *T.* a. pubéscens; and, if this be correctly named, we should have no doubt of its being nothing more than a variety of that race.

Ŧ T. *a.* 5. *heterophýlla. The various-leaved American Lime Tree.*

Synonymes. *T.* heterophýlla *Vent.*, *Dec.*; *T.* álba *Michx.*; the White Lime.
Engravings. Vent. Diss., t. 5.; Michx. Arb., 3. t. 2.; and our plate in Vol. II.

Description. Petals each with a scale at the base inside. Leaves ovate, downy beneath, sometimes cordate at the base, sometimes obliquely or equally truncate. Fruit globose, with 5 ribs. (*Don's Mill.*, i. p. 553.) According to Michaux, this tree rarely exceeds the height of 40 ft. in its native habitats; and, according to the *Nouveau Du Hamel*, it does not exceed the height of 20 ft. in France, though it has been introduced into that country upwards of 70 years. The young branches of this variety are covered with a smooth silver-grey bark; by which, and by their thickness, rough surface, and the large size of their buds, the tree is easily recognised in winter. The leaves are larger than those of any other variety, either American or European; obliquely heart-shaped and pointed like those of all the other American varieties; of a dark green on the upper surface, and whitish beneath; with small reddish tufts of hairs at the intersections of the principal nerves. The flowers appear, in America, in June; and, as well as the floral leaf, are larger than those of any other lime tree. The petals are larger and whiter, and have an agreeable odour. The seeds are round, or, rather, oval, and downy. There is a tree of this variety in the London Horticultural Society's Garden, which, if correctly named, will prove it, as we think, to be only a variety of *T.* americàna, more nearly approaching *T.* a. laxiflòra than *T.* a. pubéscens.

Geography, History, &c. *T.* a. heterophýlla, or the white lime, as it is called in America, is abundant in Maryland, Delaware, and the western states. It does not grow, like the common species (*T.* americàna), in elevated places, nor amidst the trees of the forests, but is almost always found on the banks of rivers. It is particularly observed on those of the Susquehanna, the Ohio, and the streams which flow into them; but it rarely exceeds 40 ft. in height, with a trunk of from 12 in. to 18 in. in diameter. The wood is white and tender, and is seldom applied to any use in the arts. It is remarkable, that, although this tree was known in France in the time of Du Hamel, in 1755, it should not have been introduced into England till 1811. We are not aware of any plants of it, except those in the garden of the London Horticultural Society, which have not been planted above 8 or 10 years. Like all the other American varieties, it may be considered as highly ornamental, and well deserving a place in collections, where the climate is not much more severe than that of London, or where, if the cold is greater in winter, the heat is proportionately greater in summer, and is sufficient to give such a degree of maturity to the young wood as will enable it to endure the winter.

App. i. *Doubtful Varieties of* Tília *europæ̀a and americàna.*

In the garden of the London Horticultural Society there are some names attached to young plants of lime trees, which will not be found in the foregoing enumeration as distinct. The reason is, that we have not been able to satisfy ourselves that they were sufficiently distinct from the species and varieties which we have enumerated to be worth recording. Among these names are, *T.* platyphýlla vèra, *T.* p. minor, *T.* præ̀cox, *T.* vitifòlia, *T.* laxiflòra microphýlla, and *T.* pubéscens rugòsa.

App. I. *Other Species belonging to the Order* Tiliàceæ.

The genus Grèw*ia* L. (*Dec. Prod.*, i. p. 508., and *Don's Mill.*, i. p. 547.) consists of a great number of species, mostly natives of tropical climates; but, as several of them inhabit Himalaya and the islands in the Indian Ocean, it is probable that some species might succeed in the neighbourhood of London, against a wall. In the Himalaya, Mr. Royle states that the inner bark of Grèw*ia* oppositifòlia is used for the same purposes as that of the lime tree is in Europe; that the leaves of G. dídyma and other species are given as fodder to cattle, and are dried and stacked up for winter use. The wood is used, on account of its lightness, for making boats. Some of the species of Grèw*ia* yield pleasant acid berries, much used for making sherbet. The species cannot be considered as likely to prove very ornamental in our gardens, but they will enrich them by increasing the variety. The species which might be tried are the following: G. oppositifòlia *Roxb.*, a Nepal shrub of 6 ft. with purple flowers; G. bíloba *G. Don*, a shrub, native of China; G. occidentàlis *L.*, a shrub, native of the Cape of Good Hope, which grows about the height of 10 ft., has leaves like those of the small elm, purple flowers, and has been cultivated in British green-houses since 1690; G. populifòlia *Vahl*, a shrub with leaves like those of *Pó*pulus trémula, found in Egypt; G. pùmila *Ham.*, found in Nepal; G. velutìna *Vahl*, found in Arabia; G. echinulàta *Delile*, found in the north of Africa. The only one of these species which is at present in British gardens is G. occidentàlis *Bot. Mag.*, t. 422., which well deserves a trial against a conservative wall.

CHAP. XIX.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER TERNSTRÖM*IA*̀*CEÆ*.

DISTINCTIVE Characteristics. Thalamiflorous. (*H. B.*) Calyx with an imbricate æstivation. Stamens with filaments monadelphous or polyadelphous, and anthers 2-celled to 4-celled. Leaves alternate. (*Lindley's Introd. to N. S.*; and *Don's Mill.*) The species which endure the open air, belonging to this order, are included in two tribes, *Gordon*ièæ, and *Camell*ièæ.

Sect. I. *Hardy and half-hardy ligneous Plants belonging to the Tribe Gordon*ièæ.

Common Character. Sepals 5, free, or joined together at the base. Petals usually connected at the base. Stamens numerous, with filiform filaments, connected at the base. Anther oval, vane-like. Styles 5, distinct, or connected only at the base, or usually united to the tip. Carpels 5, more or less united, 1—2-seeded. Seeds few. Albumen none. Embryo straight. Radicle oblong. Cotyledons leafy, folded lengthwise. Plumule inconspicuous. Trees and shrubs of America; a few of Asia. Leaves alternate, usually deciduous, oval or oblong, feather-nerved, and without stipules. (*Dec. Prod.*, i. p. 527.) The genera are three; and their differential characters are as follow:—

Malachode'ndron *Cav.* Calyx attended by a single bractea. Petals 5—6, with the limb finely notched. Ovary marked with 5 furrows. Styles 5, free, separate to the base. Stigmas capitate. Carpels capsular, 5, connected, 1-seeded. (*Don's Mill.*, i. p. 564.)

Stua'rt*ia*. Sepals 5, connected almost to the middle, bibracteate. Petals 5. Style crowned by a 5-lobed stigma. Capsule woody, 5-celled, 5-valved. Cells 1—2-seeded. Seeds wingless. (*Don's Mill.*, i. p. 564.)

Gordo'n*ia*. Sepals 5, coriaceous. Petals 5, adhering to the tube of the stamens, and connected together at the base. Style crowned by 5 stigmas. Capsule 5-celled, 5-valved; cells 2—5-seeded. Seeds ending in a leafy wing. (*Don's Mill.*, i. p. 564.)

Genus I.

MALACHODE'NDRON *Cav.* The Malachodendron. *Lin. Syst.* Monadélphia Polyándria.

Identification. Cav. Diss., 5. p. 502.; Juss. Gen., 275.; Mitch. Gen., 16. p. 38.; Dec. Prod., 1. p. 528.; and Don's Mill., 1. p. 572.

Synonymes. Stuárt*ia* L'Hérit.: Stewárt*ia* L.

Derivation. From *malakos*, soft, and *dendron*, a tree; in allusion, perhaps, to the quality of the timber: or, possibly, from the flowers resembling those of the mallow, the Greek name for which is *malachē*.

Gen. Char., *&c.* *Calyx* 5-cleft, furnished with two bracteas at the base. *Petals* 5, with a crenulate limb. *Ovary* 5-furrowed. *Styles* 5, unconnected. *Stigmas* capitate. *Carpels* 5, capsular, connected, 1-seeded. *Seeds* unknown. (*Don's Mill.*, i. p. 572.) A deciduous low tree, with large white flowers.

¥ 1. Malachode'ndron ova'tum *Cav.* The ovate-*leaved* Malachodendron.

Identification. Cav., l. c.; Lindl. Bot. Reg.; Don's Mill., 1. p. 272.

Synonymes. Stuárt*ia* pentagýnia *L'Hérit.*; Stewárt*ia* Malachodéndron *Mill.*; Stewartia à cinq Styles, *Fr.*

Engravings. Smith's Exot. Bot., t. 101.; Michx. t. 58.; Bot. Reg., t. 1104.; and our *fig.* 91.

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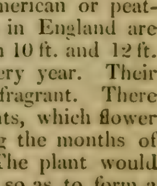

Spec. Char., *&c.* Leaves ovate, acuminated. Flowers axillary, solitary, almost sessile. Petals waved, cut, of a pale cream-colour. (*Don's Mill.*, i. p. 572.) A deciduous tree, attaining, in its native country, the height of 20 ft.; but, in England, generally seen as a bush, and seldom above 10 ft. or 12 ft. high. It is a native of Virginia, Carolina, and Georgia, on mountains; and it was introduced into England in 1795, producing its large white flowers in August and September. It has been, since the period of its introduction, in frequent cultivation among other American or peat-earth plants. The largest specimens which we have seen in England are at Dropmore and White Knights: the former are between 10 ft. and 12 ft. high, and form wide-spreading bushes, flowering freely every year. Their flowers are very large (2½ in. or more across), and slightly fragrant. There are a great many trees nearly equally large at White Knights, which flower magnificently every year, and make a fine appearance during the months of August and September, when they are in full bloom. The plant would have a much better effect if trained up with a single stem, so as to form a small tree. For this purpose, after a plant has been two or three years established, it may be advisable to cut it down to the ground; and, from the shoots that it will throw up, to select one, and train it as the stem of the future tree. The soil in which it is generally grown is a mixture of loam and peat, in which the latter prevails; but, in the Mile End Nursery, it shoots vigorously, and flowers freely, in deep sandy loam. The situation should be sheltered; and shaded rather than otherwise. The usual mode of propagation is by layers; and the stools are sometimes protected, during winter, by mats. Plants, in the London nurseries, cost 5*s.* each; at Bollwyller, 15 francs; and at New York, 50 cents.

GENUS II.

STUA'RT*IA* Cav. THE STUARTIA. *Lin. Syst.* Monadélphia Pentándria.

Identification. Cav. Diss., 5. p. 393.; Dec. Prod., 1. p 528., as Stewárt*ia*; Don's Mill., 1. p. 573.
Derivation. Named in honour of *John Stewart*, Marquess of Bute, the patron of Sir John Hill, and a distinguished promoter of botanical science.

General Character, &c. *Calyx* permanent, 5-cleft, rarely 5-parted, furnished with two bracteas at the base. *Petals* 5. *Ovary* roundish. *Style* 1, filiform, crowned by a capitate 5-lobed stigma. *Capsule* woody, 5-celled, 5-valved; cells 1—2-seeded. *Seeds* wingless, ovate, even. (*Don's Mill.*, i. p. 573.)—A deciduous shrub, or low tree, with large white flowers.

1. STUA'RT*IA* VIRGI'NICA *Cav.* The Virginian Stuartia.

Identification. Dec. Prod., 1. p. 528; Don's Mill., 1. p. 573.
Synonymes. Stewárt*ia* Malachodéndron *Lin. Sp.*, 982.; Stuárt*ia* marilándica *Bot. Rep.*; Stewartia à un Style, *Fr.*; eingriffliche (one-styled) Stuartie, *Ger.*
Engravings. Lam. Ill., t. 593.; Bot. Rep., t. 397.; and our *fig.* 92.

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Spec. Char., &c. Flowers large, white, with purple filaments and blue anthers, usually in pairs. Leaves ovate, acute. Petals entire. (*Don's Mill.*, i. p. 573.) A deciduous shrub; from 6 ft. to 8 ft. high in Virginia, its native country, and attaining nearly the same height in British gardens. It is found in swamps in the lower parts both of Virginia and Carolina; and was introduced into England in 1742. The general appearance of the plant is the same as that of the preceding genus; but it forms a smaller bush, and the foliage has a redder hue. The flowers are of the same size, white, with purple filaments and blue anthers. This plant is not so extensively cultivated as the other, from its being of somewhat slower growth; but its beauty, and the circumstance of its flowering from July to September, when but few trees or shrubs are in blossom, render it desirable for every collection. It thrives best in a peat soil, kept moist; but it will also grow in deep moist sand. In this, as in similar cases, care should be taken that no rampant plant be placed near it, the roots of which might penetrate into the mass of peat or sand, and, from their greater vigour, soon occupy it, and destroy, or greatly injure, those of the Stuárt*ia*. The propagation of this plant is the same as that of Malachodéndron; from which it is separated on account of a technical difference in the capsules, somewhat similar to that by which *Thèa* is separated from Caméll*ia*. There are large plants of this species in the Mile End Nursery. The price is the same as that of Malachodéndron.

GENUS III.

GORDO'N*IA* Ellis. THE GORDONIA. *Lin. Syst.* Monadélphia Polyándria.

Identification. Ellis, in Phil. Trans., 1770.; Cav. Diss., 307; Dec. Prod., 1. p. 528.; Don's Mill., 1. p. 573.

Derivation. Named in honour of *Alexander Gordon*, a celebrated nurseryman at Mile End, near London, who lived in the time of Philip Miller.

Gen. Char. *Calyx* of 5 rounded coriaceous sepals. *Petals* 5, somewhat adnate to the urceolus of the stamens. *Style* crowned by a peltate 5-lobed stigma. *Capsules* 5-celled, 5-valved; cells 2—4-seeded. *Seeds* ending in a leafy wing fixed to the central column, filiform. (*Don's Mill.*, i. p. 573.)—There are only two hardy species, both sub-evergreen.

🌳 1. Gordo`n*ia* Lasia´nthus *L.* The woolly-flowered Gordonia, *or Loblolly Bay.*

Identification. Lin. Mant., 570.; Dec. Prod., 1. p. 528.; Don's Mill., 1. p. 573.
Synonymes. *Hypéricum* Lasiánthus *Lin. Sp.*, 1101., *Catesb. Carol.*, 1. t. 44, *Pluk. Amalth.*, t. 352.; Gordonia à Feuilles glabres, and Alcée de la Floride, *Fr.*; langstielige Gordonie, *Ger.*
Engravings. Cav. Diss., 6. t. 171.; Sims, Bot. Mag., t. 668.; Catesb. Carol., 1. t. 44.; Pluk. Amalth., t. 352.; and our *fig.* 93.

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Spec. Char., &c. Pedicels axillary, usually shorter than the leaves. Leaves oblong, coriaceous, smooth, serrated. Calyx silky. Capsules conoid, acuminated. (*Don's Mill.*, i. p. 573.) A tree growing, in its native country, to the height of 50 ft. or 60 ft., with a diameter of 18 in. or 20 in.; and a straight trunk of from 25 ft. to 30 ft. "The small divergency of its branches near the trunk gives it a regularly pyramidal form; but, as they ascend, they spread more loosely, like those of other trees of the forest. The bark is very smooth, while the tree is less than 6 in. in diameter: on old trees it is thick, and deeply furrowed. The leaves are evergreen, from 3 in. to 6 in. long, alternate, oval-acuminate, slightly toothed, and smooth and shining on the upper surface. The flowers are more than 1 in. broad, white, and sweet-scented: they begin to appear about the middle of July, and continue blooming in succession during two or three months. This tree possesses the agreeable singularity of bearing flowers when it is only 3 ft. or 4 ft. high. The fruit is an oval capsule, divided into five compartments, each of which contains small, black, winged seeds." (*Sylva Americana*, p. 164, 165.) In England, the Gordòn*ia* Lasiánthus is seldom seen otherwise than as a sub-evergreen bush, of 5 ft. or 6 ft. in height; but it flowers beautifully, even at that size. It sometimes, however, reaches the height of 10 ft. or 12 ft.

Geography, History, &c. The loblolly bay has a comparatively limited range in North America, being confined to the swamps near the sea coast, from the Floridas to Lower Louisiana. "In the pine-barrens, tracts of 50 or 100 acres are met with, at intervals, which, being lower than the adjacent ground, are kept constantly moist by the waters collected in them after the great rains. These spots are entirely covered with the loblolly bay, and are called bay swamps. Although the layer of vegetable mould is only 3 in. or 4 in. thick, and reposes upon a bed of barren sand, the vegetation of these trees is surprisingly luxuriant." (*Sylva Amer.*, p. 164.) This plant seems to have been first recorded by Catesby; and it was soon afterwards described by Ellis, in the *Philosophical Transactions*; and figured there, as well as in Catesby's *Carolina*. It was introduced into England, about 1768, by Benjamin Bewick, Esq.; but it has never been very successfully cultivated, apparently from neglecting to imitate its natural habitat, a swampy soil in a low sheltered situation. The largest plants in the neighbourhood of London are at Purser's Cross, and are not above 10 ft. high.

Properties and Uses. The wood of this tree, in America, is considered of little use; but its bark is of great value for tanning, for which purpose it is employed throughout the maritime parts of the southern states, and of the Floridas. A bark fit for the purpose of tanning is more valuable, in America, than might at first sight be imagined; because, though they have many sorts of oak, there are very few the bark of which contains a sufficient quantity of tannin to be worth employing by the tanner. Hence the Americans import the bark and acorn cups of Quércus Æ'gilops from Spain; and these they mix with the bark of the loblolly bay. Michaux remarks that the bark may be taken off this tree during three months; which shows that in it the sap is abundant, and in vigorous motion, during a much longer period than it is in the oak. In the northern parts of America, such as New York and Philadelphia, the loblolly bay is planted in gardens, along with the magnolia, as an ornamental tree, requiring there, as it does in Paris, some slight protection during winter.

Soil, Situation, &c. This most beautifully flowering tree well deserves to have a suitable soil prepared for it, and to be treated with more care after it is planted than it appears to have hitherto received in England. The soil ought to be peat, or leaf-mould and sand; and it should be so circumstanced as always to be kept moist. For this purpose a considerable mass of soil ought to be brought together, and placed in an excavation, on a retentive substratum, in a low situation. During summer, water ought to be supplied from below, rather than from the surface, in order that the degree of moisture be kept as steady as possible; which it never can be when the surface is alternately moistened by the watering-pot, and dried by the sun. A steady moisture may be produced by laying in the bottom of the foundation either one or two brick drains across it, or a substratum of broken stones or gravel, to which water can be supplied through a shaft or tube communicating with the surface. Where both species of Gordòn*ia* are to be grown along with some other American trees and shrubs, such as Magnòl*ia* glaúca, &c., which require similar treatment, the expense of this preparation would be well worth incurring, in order to insure the successful growth of the plants. In British nurseries, the Gordòn*ia* is generally propagated by layers, but sometimes seeds are imported. These require to be raised on peat soil, kept moist, and shaded; and for this purpose a covering of *S*phágnum is thought desirable, as the seeds which drop from the plants in their native habitats, according to Michaux, only germinate successfully in this moss.

Statistics. There are specimens of this tree of 8 ft. or 10 ft. in height at Purser's Cross, at White Knights, in some of the London nurseries, and at a few other places in England; but scarcely any in Scotland, from the tree being rather tender; and but few in Ireland, because there the summers seldom admit of the wood being ripened. In the neighbourhood of Paris, there are some plants in the nurseries which have attained the height of 8 ft. or 10 ft.; and there was formerly a large one at Malmaison. Price, in the London nurseries, 5*s.*; at Bollwyller, ?; and at New York, 1 dollar.

♀ 2. G. PUBE'SCENS *Ph.* The pubescent Gordonia.

Identification. Pursh, Flor. Amer., 2. p. 451.; Dec. Prod., 1. p. 528.; Don's Mill., 1. p. 573.
Synonymes. Lacathèa florída *Sal. Par. Lond.*, t. 56.; Franklín*ia* americàna *Marsh.*; the Franklinia, *Amer.*; behaarte Gordonie, *Ger.*
Engravings. Sal. Flor. Lond., t. 56.; Michx., t. 59.; and our *fig.* 94.

Spec. Char., &c. Flowers almost sessile. Leaves obovate-lanceolate, pubescent beneath, somewhat serrated, membranaceous. Petals and sepals rather silky on the outside. (*Don's Mill.*, i. p. 573.) A deciduous tree, from 20 ft. to 30 ft. high, producing large, white, fragrant flowers, with yellow anthers, in September and October. 1774.

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Variety. — De Candolle indicates two forms: — *G. p. velutìna*, G. pubéscens *L'Hér.*, figured in *Cav. Diss.*, 6. t. 162., with oblong leaves velvety beneath, which may be considered the species; and *G. p. subglàbra*, G. Fránklin*i* L'Hér., and Franklín*ia Alàtamàha* Marsh., with leaves smoothish beneath.

Description, &c. This species is much smaller than the preceding one; in its native country forming a deciduous tree, rarely exceeding 30 ft. in height, with a trunk 6 in. or 8 in. in diameter. The bark of the trunk is smooth, and presents a ridged surface, somewhat like that of the common hornbeam. The flowers are more than 1 in. in diameter, white, and of an agreeable odour. In Carolina they appear about the beginning of July; and a month later near Philadelphia. They open in succession during two or three months, and begin to appear when the tree is only 3 ft. or 4 ft. high. In the neighbourhood of London the tree seldom comes into flower before September; and it continues flowering till its flower buds are destroyed by frost. It is rather hardier than the preceding species.

Geography, History, &c. This species is found only on the banks of the Alatamaha river in Georgia; where it was discovered, in 1770, by John Bartram, who gave it the name of Franklín*ia*, in honour of the celebrated Dr. Franklin. Its native soil is sandy wastes, where there is peat, and where there is abundance of moisture great part of the year. This tree was introduced into England, in 1774, by Mr. William Malcolm. It is considered somewhat hardier than the preceding species, and has been more generally cultivated. The soil, situation, &c., may be considered, in all respects, the same as for Gordòn*ia* Lasiánthus. There are plants from 6 ft. to 8 ft. high in the Mile End Nursery, and of a larger size at Purser's Cross and at Syon; there are, also, some very fine bushes, or low trees, of it at White Knights, which flower freely every year. In the *Nouveau Du Hamel* it is stated to be cultivated in the "*Jardin Impérial des Plantes*," in those of Malmaison, and of the Trianon, and in Cels's Nursery. There is, or was a few years ago, a tree of considerable size in the garden at Trianon; and there is one in Bartram's Botanic Garden, Philadelphia (now Carr's Nursery), 50 ft. high. (See *Gard. Mag.*, vol. viii. p. 272.) Price, in the London nurseries, 3*s.* 6*d.* a plant; at Bollwyller, 4 francs; and at New York, 40 cents, and the seeds 2 dollars a quart.

Sect. II. *Hardy and half-hardy ligneous Plants belonging to the Tribe Camell*ieæ.

Common Character. Calyx of 5—9 sepals. Petals 5—7—9, alternating with the sepals when they are the same in number: sometimes they are connected at the base. Stamens numerous, usually monadelphous, but, in some, separated into many bundles at the base. Capsule 3—5-celled, 3—5-valved, valves sometimes with dissepiments in the middle, and sometimes so much bent in at the margins as to form dissepiments. Seeds large, few, fixed to the margins of the central placentæ. Smooth evergreen trees or shrubs, inhabitants of the colder parts of Asia, China, Japan, &c. Flowers axillary, very showy, red, white, or striped. (*Don's Mill.*, i. p. 574.) The half-hardy genera are two, Caméll*ia* and *Thèa*; which are thus contradistinguished: —

CAME'LL*IA*. Stamens polyadelphous or monadelphous at the base. Valve of capsule bearing a dissepiment in the middle of each.

THE'A. Stamens almost unconnected to the very base. Dissepiments of capsule formed from the inflexed margins of the valves.

GENUS I.

CAME'LL*IA* L. THE CAMELLIA. *Lin. Syst.* Monadélphia Polyándria.

Identification. Lin. Gen., No. 848.; Dec. Prod., 1. p. 529.; Don's Mill., 1. p. 574.
Synonymes. The Japan Rose; Camellier, Rose du Japon, et de la Chine, *Fr.*; Camellie, *Ger.*
Derivation. Named in honour of *George Joseph Camellus*, or *Kamel*, a Moravian Jesuit, and traveller in Asia.

Gen. Char., &c. *Calyx* imbricate, surrounded by accessory bracteas or sepals. *Stamens* monadelphous. *Anthers* elliptical, 2-celled, bursting lengthwise; capsule furrowed, with a dissepiment in the middle of each valve, separating from the free triquetrous axis when ripe. *Cells* 1—2-seeded. Elegant evergreen trees or shrubs, with coriaceous, dark green, shining leaves and large flowers, resembling the rose, of various hues. (*Don's Mill.*, i. p. 574.) — The species are evergreen low trees or shrubs, from China, all of which will bear the open air in the neighbourhood of London, with some protection during winter; and a few of them, when once established, with no protection whatever. They are all readily propagated by layers, which, for the commoner sorts, are made from stools planted in cold-pits. They are also propagated by cuttings of the ripe wood, planted in autumn, and kept in a cool frame through the winter, being put into heat when they begin to grow in the spring. Grafting, inarching, and budding are employed for propagating the sorts that are comparatively rare. Various new sorts have been raised from seeds ripened in this country.

An excellent work has been published on the Camell*ieæ*, by Messrs. Chandler and Booth, entitled *Illustrations and Descriptions of the Camellieæ*; in which many of the finest varieties are figured, and scientifically described. Another work, on the same genus, is in course of publication by the Messrs. Baumann, at Bollwyller.

■ 1. C. JAPO´NICA *L.* The Japanese Camellia, *or the red single-flowered Camellia.*

Identification. Lin. Sp., 982.; Dec. Prod., 1. p. 529.; Don's Mill., 1. p. 574.
Engravings. Cav. Diss., 6. t. 160.; Jacq. Icon. rar., 3. t. 553.; Duh. Ed. nov., t. 71.; Bot. Mag., t. 42.; Chandl. Ill., t. 1.; Andr. Bot. Rep., t. 25.; Lod. Bot. Cab., t. 329. and 455.; Lois. Herb. Amat., t. 43, 44, 45, and 46.; and our *fig.* 94.

Spec. Char., &c. Leaves ovate, acuminate, acutely serrated. Flowers axillary, sessile, usually solitary. Ovary smooth. (*Don's Mill.*, i. p. 574.) An evergreen shrub or low tree, perfectly hardy in the neighbourhood of London, as a standard in the free soil, when once thoroughly established.

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Geography, History, &c. The Camél*lia* japónica is indigenous both in China and Japan, and probably in other parts of Asia not yet explored by botanists. In Japan, it forms a lofty tree in high esteem with the Japanese for the elegance of its large flowers, which there exhibit a great variety of colours, and are produced from October to April. The trees are universally planted in the Japanese gardens; and, according to Thunberg, there are there several double-flowered varieties; and, among others, a double purple. The Camél*lia* was introduced into England by Lord Petre, about or before 1739. The first plants brought over were killed by being kept in a stove; but it was afterwards reimported, and kept in a conservatory. The plant began to come into general estimation in England about the beginning of the present century; and it has since been more extensively propagated than any other genus of green-house plants, unless we except Pelargònium and *E*rìca. Within the last 15 or 20 years plants of this species have been tried in the open air, some against walls, and others as bushes; and, provided they are protected for a few years after planting, till the roots become firmly established in the soil, they seem to be nearly as hardy, even in the climate of London, as the common laurel. Sweet, who, it will be allowed, is a competent judge, says, "the Camél*lia* is not generally so much cultivated as it deserves to be, though it is very hardy, standing out our severest winters when planted out against a wall, or in any sheltered situation, without protection." In Devonshire camellias form immense evergreen bushes without any protection whatever, and have even ripened seeds from which young plants have been raised. There is a single red camellia at Bicton, about 2½ miles from the sea, and 83 ft. above its level, which is 9 ft. 6 in. high, with the head covering a space 12 ft. 6 in. in diameter. The soil and subsoil are chiefly sand, and the situation not particularly well sheltered. It has been planted out for 16 years, and not protected for the last 12 years. During the last five years, it has endured a temperature of 10° Fah., without sustaining the slightest injury. At Bicton there are a number of other varieties of C. japónica planted out as bushes. In the Vauxhall Nursery 8 sorts have stood out against a north-west wall for 8 years, and flowered freely every year without the slightest protection;

and in the Goldworth arboretum there are 30 or 40 sorts, species and varieties, which have stood out as bushes for several years, also without any protection, and in an elevated, open, unsheltered situation. We are not aware of the Camél*lia* japónica having been tried as a standard in the open air in France or Germany; but at Naples, and more especially at Caserta, it has attained the height of 20 ft. in a very few years. (See *Gard. Mag.*, vol. xi. p. 151.) The price of the single-flowered variety, in the London nurseries, is 1*s.* 6*d.* a plant; at Bollwyller, 3 francs; and at New York, ?.

Varieties. A great many varieties have been raised in the neighbourhood of London, chiefly in the nursery of Messrs. Chandler and Son, and in the garden of the Messrs. Loddiges. Some of these may be considered as rather tender, but the greater part of them would answer against a north-west or north-east wall, if protected. The following is an enumeration of the principal varieties known in British gardens.

A. *Chinese Varieties in general Cultivation.*

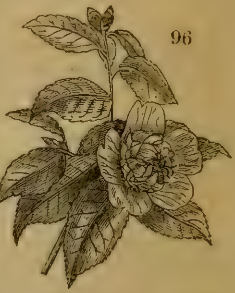
♣ *C. j.* 2 *variegàta* Bot. Rep. *The variegated*-flowered *Japanese Camellia.*—Figured in Lodd. *Bot. Cab.*, t. 329.; Chandl. *Ill.*, t. 6.; and *Bot. Rep.*, t. 91. It has flowers of a fine dark red, irregularly blotched with white. This is one of the hardiest of the varieties, and has stood out in several places for eight or ten years as an evergreen bush; flowering freely every spring, though sometimes having the flowers injured by frost. It has stood in the Vauxhall Nursery, without protection, for eight years. There are stools of it in the open ground in the Leyton Nursery, where it is propagated for sale in the same manner as the *Laúrus* nóbilis, and other hardy evergreen shrubs. There are stools of it in the Vauxhall Nursery, in cold-pits, from which plants are raised, and sold as hardy evergreen shrubs in the same manner as at Leyton. It was imported from China, by Captain Connor, for the late John Slater, Esq., in 1792. Price, in London, 3*s.* 6*d.* a plant; and at Bollwyller, 5 francs.

♣ *C. j.* 3 *incarnàta* Bot. Reg. *The flesh*-colour-flowered *Japanese Camellia,* Lady Hume's Camellia, or Blush Camellia.—Figured in *Bot. Reg.*, t. 112.; and Chandl. *Ill.*, t. 7. This is generally considered the next hardiest variety to C. j. variegàta. The flowers are of a fine delicate, and yet glowing, blush colour, becoming richer as they expand; the leaves are narrower and more acuminated than those of the preceding variety, and the tree has a looser and more slender habit of growth. Imported in 1806, for the late Lady Amelia Hume, of Wormeleybury, Herts. Price, in London, 3*s.* 6*d.* a plant; and at Bollwyller, 4 francs.

♣ *C. j.* 4 *álba plèna* Bot. Rep. *The white-double*-flowered *Japanese Camellia.*—Figured in Chandl. *Ill.*, t. 11.; Lodd. *Bot. Cab.*, t. 269. The flowers are of a pure white, from 3 in. to 4 in. in diameter. Plants of this variety, between 6 ft. and 8 ft. in height, have stood out as bushes in the Mile End Nursery, at Messrs. Loddiges's, in the Vauxhall Nursery, and at Purser's Cross, for several years. "One of the most elegant varieties in cultivation; brought to England, in 1792, by the same gentleman who introduced the double-striped; viz. John Slater of the India House, according to Messrs. Chandler and Booth; but Thomas Slater, according to Mr. Main, who went out as collector for Gilbert Slater ([*Gard. Mag.*], vol. ii. p. 423.) in 1791." (*Gard. Mag.*, vol. vi. p. 471.) Price, in London, 3*s.* 6*d.*; at Bollwyller, 4 francs. Beautiful imitations of the flowers of this variety have been formed in wax.

♣ *C. j.* 5 *fimbriàta* Lodd. *The fringed*-petaled white-double-flowered *Japanese Camellia.*—Figured in Chandl. *Ill.*, t. 15.; and Lodd. *Bot. Cab.*, t. 1103. In cultivation since 1816, and a very beautiful variety. "Mr. Colvill, of the King's Road Nursery, has the merit of being the first who brought it into notice, and no collection ought to be without it." (*Chandl. Ill.*, t. 15.) Price, in London, 5*s.*; and at Bollwyller, 15 francs.

j. 6 *rùbra plèna* Bot. Rep. *The red-double*-flowered *Japanese Camellia,* Old red, and Greville's red.—Figured in *Bot. Rep.*, t. 199.; and in Chandl. *Ill.*, t. 18. The flowers are of a crimson-red colour, and resemble those of a double *H*ibíscus *R*òsa sinénsis. Imported in 1794, by Sir Robert Preston, of Valleyfield, in Perthshire, and Woodfield, in Essex. Of a free and robust habit, and growing very erect; flowers but sparingly produced before the plant gets old; and hence this is not so much cultivated as some other varieties. The flowers are about 3 in. or 3½ in. in diameter, and open at the same time as those of the waratah and àtro-rùbens. Price, in London, 3*s.* 6*d.* a plant; and at Bollwyller, 5 francs.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✿ *C. j.* 7 *anemoneflòra. The Anemone-flowered Japanese Camellia,* Waratah Camellia, Blush Waratah Camellia.—Figured in *Bot. Mag.*, t. 1654.; Chandl. *Ill.*, t. 8.; and our *fig.* 96. Named Waratah from the resemblance of the flower to that of the Telòpea speciosíssima, or waratah plant. This is one of the most singular, as well as the most beautiful, varieties: the flowers resemble those of a double poppy anemone (*A*nemòne coronària), having the exterior petals of the usual form, and the centre ones narrow and numerous; they are 3 in. or 4 in. in diameter, and of a deep and brilliant scarlet colour. Price, in London, 5*s.* each; and at Bollwyller, 10 francs.

✿ *C. j.* 8 *crassinérvis* Lodd. *The thick-nerved*-leaved *Japanese Camellia,* Kent's Camellia, Kent's hexangular.—Figured in Chandl. *Ill.*, t. 39.; and Lodd. *Bot. Cab.*, t. 1475. Resembles the waratah, but differs in the outer petals being paler and more cupped, and in the leaves being thinner and rounder. Introduced in 1820. Price, in London, 7*s.* 6*d.*; and at Bollwyller, 15 francs.

✿ *C. j.* 9 *myrtifòlia* Bot. Mag. *The Myrtle-leaved Japanese Camellia.* —Figured in *Bot. Mag.*, 1670.; and Chandl. *Ill.*, t. 14. The leaves are rather smaller than in most of the other varieties, and the flowers large in proportion to them, being about 3 in. in diameter. The plant is somewhat slender in growth, but flowers freely. Supposed to have been imported in 1808, for the Kew Garden. Price, in London, 5*s.*; and at Bollwyller, 6 francs.

✿ *C. j.* 10 *involùta* Bot. Reg. *The involute*-petaled *Japanese Camellia,* Lady Long's Camellia.—Figured in *Bot. Reg.*, t. 633. In general appearance resembling C. j. *m*yrtifòlia, but more erect and of stronger growth, and having petals involute, instead of spreading. Mr. Sweet deemed it identical with C. *m*yrtifòlia, as appears by his *Hort. Brit.*, p. 73. Introduced in 1820. In London, 7*s.*; and at Bollwyller, 25 francs.

✿ *C. j.* 11 *variábilis. The variable*-coloured-flowered *Japanese Camellia.* — More than four different-coloured flowers are produced upon the same plant; namely, red, white, and blush varieties of the pæony-flowered and the pompone.

✿ *C. j.* 12 Pompònia *Bot. Reg. The Pompone Japanese Camellia,* the Kew Blush Camellia.—Figured in *Bot. Reg.*, t. 22.; and Chandl. *Ill.*, t. 9. The name appears to be derived from some fancied resemblance of the flowers to the French head-dress called a pompone. The petals are delicate in their texture, and, when fully expanded, the flowers are just 4 in. across. The colour of the petals is pure white, except for about a third of their length nearest the base, which is deeply tinged with red, of which there is a small stripe up the centre. Introduced in 1810. This variety is very hardy; plants of it have stood out for eight winters in the Vauxhall Nursery. Price, in London, 3*s.* 6*d.*; and at Bollwyller, 4 francs. *C. j.* *pæoni*æflòra *ròsea*, figured in Chandl. *Ill.*, t. 19.; *C. j.* p. *pállida*, and *C. j.* p. *álba*; the red peony-flowered, introduced in 1810; the blush pæony-flowered, introduced in 1820; and the white pæony-flowered, introduced in 1810, may be considered as subvarieties of the pompone. The price of these subvarieties is somewhat higher than that of *C. j.* Pompònia.

❀ *C. j.* 13 *semidùplex* Bot. Rep. *The semidouble*-flowered *Japanese Camellia.* — Figured in *Bot. Rep.*, t. 559. The flowers consist of from 6 to 12 large roundish petals, in a single or double series, with a column of stamens in the centre: they are of a rich rose colour. Introduced in 1808. Middlemist's red camellia so closely resembles this sort as hardly to be distinguishable from it.

❀ *C. j.* 14 *àtro-rùbens* Bot. Cab. *The dark red*-flowered *Japanese Camellia*, Loddiges's red Camellia.—Figured in Lodd. *Bot. Cab.*, t. 170.; and Chandl. *Ill.*, t. 25. This is a very beautiful variety, and a vigorously growing one. It is always among the latest in coming into blossom, the flowers opening at about the same time as those of the waratah camellia. The plants have an erect fastigiate habit, and the flowers are of a deep scarlet, and are very showy. They are not so large as in some of the other varieties; but they have a marked appearance from the middle of the flower being filled with small petals, which project so as to overtop the others. Imported by Messrs. Loddiges, from China, in 1809. Price, in London, 5*s.*; and at Bollwyller, 5 francs.

❀ *C. j.* 15 *Welbánk*ii *Chandl. Ill.*, t. 27.; *Welbank's* white-flowered *Japanese Camellia.* C. j. lùteo-álbicans *Bot. Reg.*, t. 708.; C. j. flavéscens; and white Moutan Camellia.—Figured in *Bot. Reg.*, t. 708. The flowers, which have been compared to those of Gardèn*ia* flórida, are of a yellowish-white colour, rather delicate, and they do not open very freely. The flowers are from 3 in. to 3½ in. in diameter. In Messrs. Chandler and Booth's account of this variety, published Feb., 1831, it is characterised as very different from any other white-flowered kind, and as being of robust habit, and remarkable for the convexity of its foliage. Introduced by Captains Welbank and Rawes in 1820. Price, in London, 5*s.*; and at Bollwyller, 10 francs.

❀ *C. j.* 16 *ròsea* Don's Mill. *The rosy*-flowered *Japanese Camellia.*—The flower has the appearance of a small moss rose; it measures about 2½ in. in diameter, approaching in form that of the myrtle-leaved. Introduced in 1821. Price, in London, 3*s.* 6*d.* each; and at Bollwyller, 5 francs.

❀ *C. j.* 17 *speciòsa* Hort. Trans. *The showy Japanese Camellia*, Rawes's variegated Waratah Camellia. Caméll*ia* Rawes*iàna* Hort. — Figured in Chandl. *Ill.*, t. 32. An extremely handsome variety, with flowers of a deeper red than either those of C. àtro-rùbens or the waratah. They open very regularly, and, when expanded, are usually 4 in. in diameter. Nearly the whole of the petals have a little white stripe at their base, and some of them are variegated; all of them are disposed in the same manner as those of the waratah. It was imported by Captain Richard Rawes in 1824, who presented it to his relation, T. C. Palmer, Esq., Bromley, Kent. Price, in London, 10*s.* 6*d.*; and at Bollwyller, 50 francs.

❀ *C. j.* 18 *cárnea* Bot. Reg. *The flesh*-coloured-flowered *Japanese Camellia*, Middlemist's red Camellia, rose-coloured Camellia.—Figured in *Bot. Reg.*, t. 22. The flowers are similar in colour to those of the semidouble red (No. 13.), but larger. The centre petals are short and vary in form; generally they are roundish and a little twisted, as well as marked with dark-coloured veins, and all of them have, more or less, a small white-coloured stripe down their centre. The stamens are generally all changed into petals, and the whole flower resembles a full-blown rose. Introduced in 1808.

❀ *C. j.* 19 *imbricàta* Hort. Trans. *The imbricated*-petaled *Japanese Camellia*, crimson Shell Camellia. — Figured in Chandl. *Ill.*, t. 22.; and *Bot. Reg.*, t. 1398. " Without doubt, the best variety that has been brought from China. The flowers are upwards of 3½ in. in diameter, and are very regular in form, the petals being arranged one above another, and gradually diminishing in size towards the centre, exactly in the manner of the double white. The colour is of a fine crimson red, and remarkably showy. When the flowers first begin to open they are concave, but, as they expand, they become quite flat. The outer petals are nearly round. The centre petals are rather pointed, and rise upright." (*Don's Mill.*, i. p. 576.) Introduced in 1824. Price, in London, 7*s.* 6*d.* each.

✱ *C. j.* 20 *Párks*ii *Hort. Trans. Parks's Japanese Camellia,* Parks's striped-Rose Camellia. — The flowers are of a bright rose colour, 4 in. in diameter, irregularly striped or blotched with white, and they are slightly odoriferous, like the flowers of the myrtle-leaved variety. In this and other respects, it differs from C. j. variegàta (No. 2.). Introduced in 1824. Price, in London, 10*s.* 6*d.* each.

✱ *C. j.* 21 *Sabini*àna *Hort. Trans. Sabine's Japanese Camellia,* Sabine's white Camellia.—The flowers are of a pure white, 3 in. across, and they resemble in form those of the pompone. Introduced in 1824.

B. *Chinese and other Foreign Varieties not in general Cultivation, but in all probability as hardy as the others.*

✱ *C. j.* 22 *candidissima* is noticed, in *G. M.*, vol. xi. p. 78. and 190., as one that assimilates to C. j. Wellbánk*ii*; and as brought directly from Japan by Dr. Siebold, and called by some C. Siebóld*i*. It is deemed by some a species. It is in Mr. Knight's collection.

✱ *C. j.* 23 *Donklàer*i. — It is said that this is a very fine variety. It was raised on the Continent, and is named after the head gardener at the botanic garden at Louvain. (*Gard. Mag.*, vol. xi. p. 85.) Mr. Knight possesses it in a living state. (p. 190.)

✱ *C. j.* 24 *francofurténsis.*—Flowers dark and light red, quite as large as those of C. reticulàta. Raised from seeds of C. argéntea, by M. J. Rinz, jun., nurseryman, Frankfort on the Maine; who deems it the finest variety that has ever been seen in Germany. It flowered for the first time in 1834. Mr. Low, at Clapton, has a plant of it. (*Gard. Mag.*, vol. xi. p. 265. 543.)

✱ *C. j.* 25 *hýbrida* Makoy. — M. Jacob Makoy sent us, previously to March, 1835, a dried specimen of this kind of camellia, which he informed us was a hybrid from C. japónica var. insígnis and C. euryöìdes. By the specimen, it assimilates in habit to euryöìdes: the leaves are ovate, acuminate, serrate, and slightly pubigerous; the sprig and buds densely pubigerous; the flower 1 in. across, perhaps more; and the petals 5, orbicular, and centred by the cluster of stamens. The petals, in a dried state, were of a buff colour; they might be, when living, white, tinted with red: nothing was stated of their colour when living. M. Makoy deemed the hybrid a fine variety. (*Gard. Mag.*, vol. xi. p. 143.)

Other names of Foreign Varieties of C. japónica. In *Gard. Mag.*, vol. xi., varieties of camellia, by the following names, are mentioned as extant on the Continent, which, it seems, are not yet so in Britain: *C. argéntea*, in p. 265.; *C. Gunnélli*, in p. 543.; *C. Pronay*àna, in p. 544.; and *C. violàcea supérba*, in p. 544.

The semidouble white was purchased in 1822, on the Continent, by Mr. Palmer, and is considered a distinct variety; but it has not yet flowered in England. *The rose-coloured waratah* was introduced, by the London Horticultural Society, from China, in 1824; but it has not yet flowered. *C. j. hexangulàris, the hexangular*-flowered *Japanese Camellia,* is a very singular variety, only known by the Chinese drawings in the possession of the London Horticultural Sociery, it not having been yet introduced. There are, doubtless, other varieties in China; but, from our increased intercourse with that country, in consequence of the trade being thrown open, there can be no doubt that they will all, sooner or later, find their way into Britain.

C. *Varieties of Caméll*ia *japónica originated in Britain.*

The varieties of the common camellia originated in Britain are exceedingly numerous. The first seeds ripened were those of C. j. *a*nemoneflòra, about the year 1818, in the Count de Vandes's garden at Bayswater; and, subsequently, a great number of varieties have been raised by Messrs. Loddiges; Messrs. Chandler, of the Vauxhall Road Nursery; Mr. Press, gardener to Edward Gray, Esq., at Harringay, Hornsey; and various other nurserymen and gardeners. In Sweet's *Hortus Britannicus*, 2d edit., published in 1830, sixty-five sorts of camellias are enumerated; of which upwards of fifty are varieties of C. japónica. The following selection of these is taken from the *Illustrations* of Booth and Chandler, already mentioned; from the *Gardener's Magazine*, and from *Don's Miller*.

a. *Varieties raised in Britain that are figured and described in Chandler and Booth's* Illustrations of the Camellieæ.

✱ *C. j.* 26 *corállina* Chandl. Ill. *The coral*-coloured-flowered *J. C.* — Figured in Chandl. *Ill.*, t. 10., and Chandler's *Camelliæ Britannicæ*, t. 5. A fine variety; its habit, like that of the waratah. Originated in 1819. Raised from seed by Messrs. Chandler of the Vauxhall Nursery. Price, in London, 7*s.* 6*d.*; and at Bollwyller, 10 francs.

♣ *C. j.* 27 *exímia* Chandl. Ill. *The choice J. C.*, Chandler's choice-flowering Camellia.—Figured in Chandler's *Ill.*, t. 12.; described there; whence the following traits are drawn. Of free growth, resembling, in some respects, the waratah. Flowers of a deep rose colour, very double, and 4 in. across. It also resembles C. j. imbricàta; but the foliage of the two is totally distinct. Price, in London, 7*s.* 6*d.*

♣ *C. j.* 28 *Wilton*i *Chandl. Ill.* Lady *Wilton's J. C.*— Figured in Chandl. *Ill.*, t. 13., and described there; where it is stated that it is a desirable well-marked variety, and distinct from either the double-striped, Parks's rose-striped, or the C. j Elphinstòn*i*. Flowers 2 in. or 2½ in. across, similar to those of the double-striped. Raised from seed by Mr. Knight of the Exotic Nursery, about 1814, probably from the single red, impregnated with the double-striped. Price, in London, 7*s.* 6*d.*; and at Bollwyller, 50 francs.

♣ *C. j.* 29 *Chándler*i *Chandl. Ill.*, synon. " versícolor *Bot. Reg.*, t. 887." (*Swt.*, in his *Hort. Brit.* p. 74.) *Chandler's J. C.*, Chandler's striped waratah C. — Figured in Chandl. *Ill.*, t. 16., Chandl. *Cam. Brit.*, t. 1 and 2., and *Bot. Reg.*, t. 887. In Chandl. *Ill.* it is stated of it, that it approaches nearer to the waratah than to any other variety, and is one of the very best which has been raised; and that it was originated by Mr. Chandler, in the Vauxhall Nursery, in 1819, from the seeds of the waratah, crossed with the double-striped. Price, in London, 7*s.* 6*d.*; and at Bolwyller, 20 francs.

♣ *C. j.* 30 *flòre álbo* Chandl. Ill. *The white single-flowered J. C.*— Figured in Chandl. *Ill.*, t. 17., and *Bot. Reg.*, t. 353. In Chandl. *Ill.* it is stated that it is more robust than almost any other variety. It abounds in flowers, and these usually open earlier than those of most other varieties; they are nearly 3 in. across, white, and not unfrequently striped or spotted with red. It seeds freely, and some fine varieties, with double flowers, of different colours, have been raised from it. It was raised from seed of the double-striped, by Messrs. Rollisson of the Tooting Nursery, in about 1814.

♣ *C. j.* 31 a*lthææflòra* Chandl. Ill. *The Hollyhock-flowered J. C.* — Figured in Chandl. *Ill.*, t. 20., and Chandl. *Cam. Brit.*, t. 4. — Flowers red. It is stated that it resembles the waratah in some respects, and is well deserving of a place in every collection. Raised by Mr. Chandler, from seed of the waratah, in 1819. Price, in London, 7*s.* 6*d.*; and at Bollwyller, 15 francs.

♣ *C. j.* 32 *anemoneflòra álba* Chandl. Ill. *The Anemone-flowered white*-flowered *J. C.*, the white Waratah C. — Figured in Chandl. *Ill.*, t. 21., and Chandl. *Cam. Brit.*, t. 8. This, from the account of it in Chandl. *Ill.*, is a most elegant variety, with blossoms of a delicate white colour, a little striped; occasionally spotted with pale red, from 3½ in. to 4 in. over. It was raised from the pompone. Price, in London, 7*s.* 6*d.*; and at Bollwyller, 15 francs.

♣ *C. j.* 33 *Woóds*ii *Chandl. Woods's J. C.* — Figured in Chandl. *Ill.*, t. 23. A seedling, raised by Mr. Chandler, who named it in compliment to Mr. Woods of Camberwell Grove, a great admirer of camellias. Its flowers are very handsome, symmetrically formed, and nearly 4 in. across. Their colour is pale red, similar to those of the common Provence rose, which, at a distance, they resemble, except in being larger, although not so double. (*Chandl. Ill.*, adapted.) Price, in London, 7*s.* 6*d.*; and at Bollwyller 50 francs.

♣ *C. j.* 34 *punctàta* Chandl. Ill. *The dotted*-flowered *J. C.*, Gray's invincible C. — Figured in Chandl. *Ill.*, t. 24., whence the following particulars are derived. The expanded blossoms are from 3 in. to 4 in. over; of a very delicate blush colour, almost white; striped, and slightly spotted with pale rose, in the manner of a rose-flake carnation. An extremely fine variety. It was raised, in 1824, by Mr. Press, gardener to E. Gray, Esq., from a seed of the semidouble red, the flowers of which had been fecundated with the pollen of the single white.

♣ *C. j.* 35 *élegans* Chandl. Ill. Chandler's *elegant J. C.*—Figured in Chandl. *Ill.*, t. 26. Of free growth; the flowers of a very delicate rose colour, and from 3½ in. to 4 in. across; in form between those of the waratah and those of the pæony-flowered, but, in other respects, distinct from those of both varieties. Raised from seed of the waratah, by Mr. Chandler, about 1822.

♣ *C. j.* 36 *flórida* Chandl. Ill. *The flowery J. C.*, the cluster-flowering C. — Figured in Chandl. *Ill.*, t. 28., and in Chandl. *Cam. Brit.*, t. 7. The flowers are not large, but very beautiful; 3 in. in diameter; of a deep rose colour, intermediate between the deep red of the waratah and the bright rose of the pæony-flowered. They are produced in great abundance at the extremity of the branches, and open pretty early in the season. This variety was produced in 1819, from seed of the waratah, from a flower that had been fertilised with the pollen of the pæony-flowered. Price, in London, 7*s.* 6*d*; and at Bollwyller, 15 francs.

♣ *C. j.* 37 r*òsea* Chandl. Ill. Middlemist's *rosy*-coloured-flowered *J. C.*, Middlemist's red C.— Figured in Chandl. *Ill.*, t. 29. The flowers open late, and are of a rich rose colour; more than semidouble, and 3 in. or more across. The stamens are sometimes perfect, but oftener transformed into small petals; so that the flower altogether resembles that of a full-blown rose.

♣ *C. j.* 38 *eclípsis* Chandl. Ill. Press's *eclipse J. C.* — Figured in Chandl. *Ill.*, t. 30. The following is abridged from the description of it in Chandl. *Ill.* The flowers are handsome and well-formed, the petals being numerous, and neatly imbricated; the ground colour white, which is striped and feathered with pale red, in the manner of a flake carnation. One of the very fine varieties originated by Mr. Press, and noticed in *Gard. Mag.*, vol. ii. p. 358. Both C. j. eclípsis and C. j. punctàta were raised from seeds contained in one capsule. Price, in London, 7*s.* 6*d.*; and at Bollwyller, 100 francs.

♣ *C. j.* 39 *insígnis* Chandl. Ill., syn. C. j. dianthiflòra *Hort. Brit.*, p. 592. *The remarkable J. C.*, Chandler's splendid C., the Carnation Waratah C. — Figured in Chandl. *Ill.*, t. 31., and Chandl. *Cam. Brit.*, t. 6. It is stated that this is a favourite variety with most cultivators, and that there are few collections in which it does not hold a conspicuous place. Its flowers are large and red. Price, in London, 7*s.* 6*d.*; and at Bollwyller, 20 francs.

♣ *C. j.* 40 *álba sémi-dùplex* Chandl. Ill., t. 33. Palmer's *white-semidouble*-flowered *J. C.* — Figured in Chandl. *Ill.*, t. 33., and described there; whence it appears that the flowers average more than 4 in. in breadth, and consist of 8 or more petals, disposed in 2 or more rows; the largest round, and about 1½ in. across; the others roundish, oblong, and a little smaller; all are extremely delicate in texture, like those of Welbank's white. Price, in London, 10*s.* 6*d.*

♣ *C. j.* 41 *concínna* Chandl. Ill. *The neat J. C.*—Figured in Chandl. *Ill.*, t. 34. The flowers open well, are very regularly formed, and of a fine rose colour; they exceed 3 in. in diameter, and are little inferior in appearance to those of C. j. exímia, or of C. j. imbricàta; the petals being nearly as numerous, and arranged with equal symmetry. Raised from seeds of the waratah, by Mr. Chandler, in 1819. It possesses much beauty; but its flowers are less brilliant than those of some others: it is not so well known as it should be. (*Ill.*, t. 34.) Price, in London, 10*s.* 6*d.*

✱ *C. j.* 42 *spléndens* Chandl. Ill., synon. C. j. coccínea *Hort. Brit.*, p. 293. Allnutt's *splendid J. C.* — Figured in Chandl. *Ill.*, t. 35. A much admired and most desirable variety. The flowers are of a brilliant red, 3 in. broad, very showy, and produced abundantly on both young plants and old ones. The petals are all deeply veined, and, though less numerous than in some varieties, are so arranged in the centre as to form flowers to all appearance perfectly double. The petals, also, are so remarkable for their roundness as to give the flowers a peculiar character; by which the variety may be readily distinguished. The plant, in habit, is similar to the single red (C. japónica *L.*), but is stronger and more bushy; the branches are upright and twiggy. Price, in London, 5*s.*

✱ *C. j.* 43 Ròsa *sinénsis* Lodd. Bot. Cab. *The Chinese Rose* (? *Hibiscus*)-flowered *J. C.* — Figured in Lodd. *Bot. Cab.*, t. 1455., and Chandl. *Ill.*, t. 36. This is a bold-flowering, freely blooming, first-rate variety. Its pale purplish red flowers are tolerably full of petals, extremely handsome, 4 in. across, and bearing considerable resemblance to those of C. j. élegans. It was raised by Mr. Chandler about 1819. Price, in London, 7*s.* 6*d*; and at Bollwyller, 15 francs.

✱ *C. j.* 44 *Róss*ii *Chandl. Ill.*, t. 37. *Ross's J. C.* — Figured in Chandl. *Ill.*, t. 37., and described in that work. This is a desirable variety: it is briefly described in *Gard. Mag.*, vol. i. p. 211., under the name of Ross's Camél*lia* gloriòsa. The flowers are often 4 in. in diameter; in form they resemble those of C. j. élegans; but in colour they are of a much darker and deeper red.

✱ *C. j.* 45 *Aiton*i *Chandl. Cam. Brit.* *Aiton's J. C.* Aiton's large single red C.—Figured in Chandl. *Ill.*, t. 38., and in Chandl. *Cam. Brit.*, t. 3. It is a very striking variety, and a most valuable one to the cultivator of camellias, on account of its producing seeds more freely than any other kind whatever. This and four others were raised at the Vauxhall Nursery, from seeds contained in one capsule of the pompone camellia, and sown in Nov. 1819. It was named in compliment to Mr. Aiton, the king's gardener. (*Ill.*) Price, in London, 7*s.* 6*d.*; and at Bollwyller, 50 francs.

✱ *C. j.* 46 *epsoménsis* Chandl. Ill. *The Epsom J. C.*, Young's semidouble red C. — Figured in Chandl. *Ill.*, t. 40. Raised by Mr. Young of Epsom, previously to 1824. It is robust in habit; its flowers are much like those of the semidouble red, but of a deeper colour, and with more petals. It is prone to vary in the number of petals: when they are numerous, some of the stamens are transformed into small, roundish, spathulate, striped, red petals, all of which, as well as the large outer ones, are tolerably evenly arranged over one another, and distinctly marked with dark-coloured veins. The usual colour of the flowers is a deep red, approaching to scarlet, and their width about 3 in. (*Ill*).

b. *Varieties raised in Britain that are figured and described in British Works, exclusive of those figured and described in Chandler and Booth's* Illustrations of the Camelliеæ.

✱ *C. j.* 47 *Colvill*i *Swt. Br. Fl.-Gard.*, 2 ser. *Colvill's J. C.* — Figured in *Swt. Br. Fl.-Gard.*, 2. s. t. 2., and described there; whence it appears that its petals are striped like those of the carnation, and that, when Mr. Sweet wrote the description, published in June, 1829, he deemed it to be the finest and most beautiful variety that he had seen: this was previous to the flowering of C. j. Sweet*iàna*. G. Don has described C. j. Colvill*ii*, as "an elegant hybrid, with the petals regularly disposed, blotched with white on a red ground." (*Don's Mill.*, i. p. 376.) Price, in London, 10*s.* 6*d.*

✱ *C. j.* 48 *Sweet*iàna *Sw. Br. Fl.-Gard.*, 2. ser. *Sweet's J. C.*, Sweet's painted-flowered C. — Figured in *Swt. Br. Fl.-Gard*, 2. s. t. 133., in March, 1832. The flower bears a strong resemblance to a beautiful variegated rose: it is generally very double, more spreading than that of many varieties, and elegantly marked and variegated with white, blush, and deep rosy red. It was the finest variety Mr. Sweet had seen, and one of numerous hybrid varieties that he had fertilised and raised from seeds, several years before (perhaps about 1824), in the nursery of Mr Colvill. This was the offspring of the double-striped, fertilised by the pompone: the foliage resembles most that of the latter, but the leaves are larger; and the plant, if not seen in flower, might be mistaken for a strong-growing single-flowered one. Sweet's camellia assimilates with Gray's invincible; but its flower bud is larger, and its flower larger, and of a deeper colour, than those of that variety.

✱ *C. j.* 49 *Knight*ii *Lodd. Bot. Cab.* *Knight's J. C.* — Figured in Lodd. *Bot. Cab.*, t. 1463. It is stated in Chandl. *Ill.*, t. 31., that this approximates closely to C. j. insignis, and that it was raised by Mr. Knight of the King's Road, Chelsea.

c. *Varieties raised in Britain, of which some Description has been published.*

✱ *C. j.* 50 Ròsa *múndi* Don's Mill. *The Rose of the World J. C.* — Flowers white and crimson. (*Don's Mill.*, i. p. 576.) Price, in London, 5s.; at Bollwyller, 50 francs.

✱ *C. j.* 51 *Préss*ii *Don's Mill.* *Press's J. C.* — Flowers single red. (*Don's Mill.*, i. p. 576.

✱ *C. j.* 52 *rùbro-punctàta* Don's Mill. *The red-spotted-*flowered *J. C.* — Flowers single, white, spotted with red. (*Don's Mill.*, i. p. 576.)

✱ *C. j.* 53 *Elphinstoni*àna. *Miss Elphinstone's J. C.* — Flowers red. Raised by Mr. Knight. (*Sweet's H. B.*, p. 74.) Assimilates to C. j. Wílton*i*. *Chandl.* (*Ill.*, t. 13.) Price, in London, 7*s.* 6*d.*

✱ *C. j.* 54 *single-striped and dotted.* Burnard, in *Gard. Mag.*, vol. ii. p. 358., has described its flowers as having a clear white ground, with pink stripes, and dotted all over with small dots: they are large and beautiful; and the variety was raised by Mr. Press, along with the varieties punctata, *R*òsa múndi, Préss*ii*, and eclípsis, from seeds saved from a plant of the semidouble red, the flowers of which had been fecundated with pollen of the single white.

✱ *C. j.* 55 aucubæ*folia* Loudon's H. B. *The Aucuba-leaved J. C.* — Splendid; its flowers red, and produced from February to May. Flowers of it were exhibited at a meeting of the London Horticultural Society, on March 3. 1835, from the Society's Garden. (*G. M.*, vol. xi. p. 216.)

✱ *C. j.* 56 *expánsa* Loudon's H. B. *The expanded*-flowered *J. C.* — Described to be splendid; its flowers red, and produced from February to May. C. j. Susánn*a*, C. j. Márth*a*, and C. j. Wadieà*na* were raised from seeds of this variety. (*G. M.*, vol. xi. p. 294.)

✱ *C. j.* 57 *Susánna Gard. Mag.*, vol. xi. p. 294. Miss *Susanna* Thomson's *J. C.* — The flower assimilates to that of C. j. Sweet*iàna*, and some have thought that it equals or surpasses it in merit. The petals have a white ground, with pink stripes, in the manner of those of the carnation, but fewer and fainter: the centre of the flower is pretty well filled with petals. The flowers are produced in plenty. It was raised in Thomson's Nursery, Mile End, from seed of the variety termed C. expánsa, produced in 1827, and sown in 1828.

✱ *C. j.* 58 *Márth*a *Gard. Mag.*, vol. xi. p. 294. *Martha* Poole's *J. C.* — Its flower assimilates to that of C. j. Colvill*i*. The mode of its formation is somewhat that of the waratah. The petals have a blush ground and pink stripes; the centre of the flower is filled with petals. The flowers are produced in plenty. The foliage is fine. Named after Mrs. Poole, formerly Martha Thomson.

✱ *C. j.* 59 *Wadie*àna.—Petals of a dead white colour. The flower large; formed differently from either the flowers of C. j. álba plèna, or C. j. fimbriàta: the petals are larger and less compactly disposed; though the centre is filled. The flowers stand long on the plant. The leaves are large and healthy. It was raised from the same stock of seeds as C. j. Susánn*a*. Named after Mr. Wadie, propagator in Thomson's Nursery, Mile End.

d. *Names of Varieties of Camélli*a *japónica that are mentioned in* Gard. Mag., vol. xi., *but without any Description of them being given.*

C. Clive*àna*, conspícua, decòra, prínceps, rotundifòlia, Pálmer*i*, Reevès*ii*, longifòlia, are mentioned in p. 215. In p. 216., C. Dorsèt*ii*, péndula. In p. 326., C. Allnútt*a* álba, and supérba. Eight hybrid camellias, raised in the gardens of W. F. Campbell, Esq., M. P., Woodhall, Lanarkshire, the names of which are not given, are mentioned in *Gard. Mag.*, vol. xi. p. 295.

D. *Varieties of Camélli*a *japónica included in the foregoing Lists, but placed here in the Order of their Hardiness in the Vauxhall Nursery, with the Retail Prices of Messrs. Chandler in* 1836, *for Plants of the smallest Size, affixed to each.*

a. *Varieties of C. japónica planted out against a North-west Wall, and which have grown and flowered well without any Protection, for Eight Years.*

Camélli*a* japónica, or single red, 3*s*. 6*d*.
álba plèna, 3*s*. 6*d*.
variegàta, 3*s*. 6*d*.
ròsea, 3*s*. 6*d*.
Pompònia, 3*s*. 6*d*.
pæoniæflòra, 3*s*. 6*d*.
incarnàta, 3*s*. 6*d*.
variábilis, 3*s*. 6*d*.

b. *Varieties of C. japónica considered the finest and most desirable, of all of which there are in the Vauxhall Nursery Stools planted in Cold-pits, and protected in severe Weather with only the Lights. The Names in the List are placed according to the Hardiness of the Sorts, and their Vigour of Growth.*

rùbra plèna, 3*s*. 6*d*.
àtro-rùbens, 5*s*.
Welbank*iàna*, 5*s*.
corállina, 7*s*. 6*d*.
imbricàta, 7*s*. 6*d*.
Chándler*i*, 7*s*. 6*d*.
Colvíll*i*, 10*s*. 6*d*.
élegans, 10*s*. 6*d*.
exímia, 7*s*. 6*d*.
speciòsa, 10*s*. 6*d*.
*a*nemoneflòra álba, 7*s*. 6*d*.
flórida, 7*s*. 6*d*.
insígnis, 7*s*. 6*d*.
dianthiflòra, 5*s*.
álba sémi-dùplex, 10*s*. 6*d*.
Sabìn*i*, 10*s*. 6*d*.
Aíton*i*, 7*s*. 6*d*.
*R*òsa sinénsis, 7*s*. 6*d*.
*a*nemoneflòra, 5*s*.
*R*òsa múndi, 5*s*.
eclípsis, 7*s*. 6*d*.
punctàta, 7*s*. 6*d*.
spléndens, 5*s*.
Wílton*i*, 7*s*. 6*d*.
concínna, 10*s*. 6*d*.
Woódsi*i*, 7*s*. 6*d*.
*m*yrtifòlia, 5*s*.
fimbriàta, 5*s*.
Elphinston*iàna*, 7*s*. 6*d*.
Párks*ii*, 10*s*. 6*d*.
compácta, 7*s*. 6*d*.
Róss*ii*, 7*s*. 6*d*.
delicatíssima, 21*s*.
Gilès*ii*, 31*s*. 6*d*.
triúmphans, 42*s*.
*a*lthææflòra, 7*s*. 6*d*.
spofforthiàna, 21*s*.
crassinérvis, 7*s*. 6*d*.
Le Blanc's red, or *r*òsea, 10*s*. 6*d*.

✱ 2. C. RETICULA`TA *Lindl.* The reticulated-*leaved* Camellia, *or Captain Rawes's Camellia.*

Identification. Lindl. Bot. Reg., t. 1078.; Hook. Bot. Mag., t. 2784.; Don's Mill., 1. p. 576.
Engravings. Lindl. Bot. Reg., 1078.; Hook. Bot. Mag., t. 2784.; Chandl. Ill., t. 4.

Spec. Char., &c. Leaves oblong, acuminated, serrated, flat, reticulated. Flowers axillary, solitary. Calyx 5-sepaled, coloured. Ovary silky. (*Don's*

Mill., i. p. 576.) Introduced from China in 1824, and still scarce and high-priced. The plant is of vigorous growth, and appears as hardy as any of the other species and varieties. It is generally propagated by inarching on the common species. It appears to flower rather later than C. japónica; and, when it becomes more frequent, it will probably, on that account, be found well adapted for the open air, or a conservative wall. Messrs. Chandler and Booth express themselves of opinion that "it will be found to be hardier than the C. japónica, and that at no distant period, perhaps, it may ornament our shrubberies." There are stools of it in a cold-pit, in the Vauxhall Nursery, where plants cost a guinea and a half each.

✱ 3. C. MALIFLO'RA *Lindl.* The Apple-*blossom*-flowered Camellia.

Identification. Lindl. Bot. Reg., 1078, in a note; Don's Mill., 1. p. 576.
Synonymes. C. *Sasánqua* of Bot. Mag., t. 2080., Bot. Reg., t. 547., and Bot. Cab., t. 1134.; C. *Sasánqua rosea Hort.*; Palmer's double Sasanqua.
Engravings. Bot. Reg., t. 1078.; Chandl. Ill., t. 2.; and, as C. *Sasánqua*, Bot. Mag., t. 2080.; Bot. Reg., t. 547.; Bot. Cab., 1134.; and our *fig.* 97.

Spec. Char., &c. Leaves obovate, convex, bluntly serrated. Flowers terminal and axillary, usually solitary. Branches and petioles pubescent. Ovary smooth. (*Don's Mill.*, i. p. 576.) Introduced from China, in 1816, by Captain Richard Rawes, into the garden of T. C. Palmer, Esq., at Bromley, in Kent, where it flowered in 1818, and was afterwards published in the *Botanical Magazine* as a variety of C. *Sasánqua*. An elegant shrub, with a slender fastigiate habit of growth, and a very free flowerer. It seldom exceeds 8 ft. in height; but, in the flowering season, its numerous semidouble apple-blossom-like flowers are extremely beautiful. The leaves are obovate, and thinner, and of a smaller size, than those of C. japónica, or any of its varieties. It is propagated by inarching on the single red, or by layers. Though this species will stand against a wall with very little protection, yet, to grow it properly, and to flower it in the best manner, it requires a little more heat than C. japónica and its varieties. In the Vauxhall Nursery there are stools of it in cold-pits. Price of plants, in London, 5*s.* each.

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✱ 4. C. *SASA'NQUA* Thun. Sasanqua, *or Lady Banks's*, Camellia.

Identification. Thun. Fl. Jap., p. 273. t. 30.; Don's Mill., 1. p. 576.
Synonymes. *Sasánqua* Kæmpf. Amœn, 853.; Cha-wha, *Chinese*, Staunt. Icon. Chin., 2. p. 466.
Engravings. Thun. Fl. Jap., t. 30.; Kæmpf. Amœn., t. 853.; Chandl. Ill., t. 5.; and our *fig.* 98.

Spec. Char., &c. Leaves ovate-oblong, serrated. Flowers terminal and axillary, solitary. Branches and ovary villous. (*Don's Mill.*, i. p. 576.) Introduced by Captain Wellbank, of the East India Company's service, in 1811. It forms a loose straggling bush when left unsupported, seldom rising higher than 3 ft. or 4 ft.; but, when tied to a stake, attaining the height of 6 ft. or 8 ft. It produces its white flowers in November and December, which very much resemble those of the tea tree. It is extensively cultivated in China, for the same object as C. oleífera; that is, for crushing the seeds for oil, and using the leaves for adulterating tea. In China, it is said to grow on the debris of rocks and stones: here it succeeds best in moderately strong, rich, sandy soil, and is readily increased by inarching or grafting on C. japónica.

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✱ 5. C. *KI'SSI* Wall. The Kissi Camellia.

Identification. Wall. Asiat. Res., 13. p. 429.; Don's Mill., 1. p. 376.
Synonyme. C. *Keìna* Hamil. MSS. in D. Don's *Prod. Fl. Nep.*, p. 924.
Engravings. Wall. Pl. Asiat. Rar., t. 256., and our *fig.* 99.

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Spec. Char., &c. Leaves elliptical, serrulated, bluntly acuminate. Flowers sessile, axillary, generally solitary, and somewhat terminal, usually 4-petaled, and with 3 distinct, furrowed, woolly styles, which are about equal in length to the stamens. Native of Nepal, at Narainhetty; where it flowers in September, and where it is called *kengua* by the inhabitants. This species is very like C. *Sasánqua*. The flowers are white and fragrant. It is called in the Newar language, *kissi*, or *kissi-swa*. The leaves have a very strong, but transient, smell of tea; but an infusion possesses only a very slight degree of flavour, owing, perhaps, as Mr. Gardner justly observes, to the defective manner of gathering and drying them. It has also been ascertained by Mr. Gardner that the Nepalese extract an oil from the seed of the *Kissi* by pressure, which is much valued by them as a medicine. (*Don's Mill.*, i. p. 676., adapted.) Introduced into the garden of the Horticultural Society in 1823; but, not being a very showy, species, it has not been extensively propagated. There are stools of it in a cold-pit in the Vauxhall Nursery. Plants, in London, cost 10*s*. 6*d*. each, and at Bollwyller, 30 francs.

♣ 6. C. OLEI'FERA *Abel.* The oil-bearing Camellia.

Identification. Abel's Chin., p. 174.; Don's Mill., 1. p. 577.
Engravings. Lodd. Bot. Cab., 1065.; Ker. Bot. Reg., 492.; Chandl. Ill., t. 3.; and our *fig.* 100.

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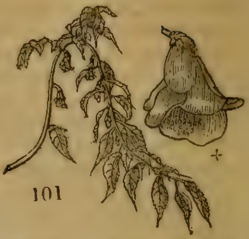
Spec. Char., &c. Leaves elliptic-oblong, acute, serrated, coriaceous, shining. Flowers solitary. Calyxes silky, deciduous. Petals 5—6, 2-lobed. (*Don's Mill.*, i. p. 577.) A native of Cochin-China, where it is cultivated, and forms a small tree 10 ft. high. This bears a close resemblance to the two preceding species: the flowers are very numerous, white, and fragrant. The Chinese call it "the oil-bearing tea plant," as it very closely resembles tea. Dr. Abel sometimes found it of the magnitude of a moderately sized cherry tree, and never less than the size of a shrub 6 ft. or 8 ft. high. At a distance, these plants looked as if they had been lightly clothed with snow; but nearer they exhibited one immense garden of white roses. This species is said to have been originally brought to the country by Lord Macartney; but it was afterwards lost till 1820, when it was reintroduced by Captain Nisbett. It is readily distinguished from C. *Sasánqua*, as it is of a much more robust habit, and larger in every respect, with thicker leaves, having moderately large serratures, and being sharp at the point. (*Gard. Mag.*, vol. vi. p. 290.) The Chinese extract an oil from the seed, which is in very general use in the domestic economy of China. The seeds are white, and are reduced to a coarse powder, which is afterwards chewed or boiled in bags, and then pressed, when the oil is produced. The seeds of all the different species of camellia are said to be used in China for the same purpose. (*Abel.*)

♣ 7. C. EURYÖI`DES *Lindl.* The Eurya-like Camellia.

Identification. Lindl. Bot. Reg., t. 983.; Don's Mill., 1. p. 577.
Synonyme. *Thèa* euryöides *Booth*, in *Hort. Trans.*
Engravings. Lodd. Bot. Cab., 1493.; Lindl. Bot. Reg., t. 983.; and our *fig.* 101.

Spec. Char., &c. Leaves ovate-lanceolate, acuminate, serrated, sulcate beneath. Branches hairy. Peduncles lateral, 1-flowered, scaly. (*Don's Mill.*, i. p. 557.) Native of China, whence it was introduced, in 1824, in rather a singular manner. The grafted part of a camellia, brought from China, in 1822, by Mr. John Potts, having perished, the stock sent up young shoots, and proved to be this species, which had been before unknown to botanists. It forms a diffuse bushy plant, with hairy branches, obovate, acuminate, serrated leaves, and small neat white flowers, never expanding fully, but in size resembling those of a *Thèa*. It is inferior in showiness to any of the previously known camellias; but must be considered a subject of much interest to the cultivator, from its being one of the stocks employed by the Chinese in propagating the ornamental species of the genus. (*Hort. Trans.*) This species is not much cultivated, because, though beautiful as an evergreen shrub, it is less so than the other sorts. It deserves a place, however, on the conservative wall, wherever the collection is extensive.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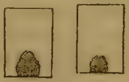
Soil, Situation, and general Management. The camellias will grow in any free soil; but a loam inclining to sand, enriched with leaf-mould or thoroughly rotten dung, seems to suit them best. Most of the species and varieties seem to prefer a situation somewhat shaded; which, as we have already observed, seems to be generally the case with evergreen plants having broad shining leaves. For this reason, an east or west wall, or even a north wall, inclining to the east or west, will be found preferable to a south wall for the more tender sorts; and for those which are to be treated as bushes, a situation in the shrubbery or arboretum, where they will be shaded by tall trees during the hottest part of the day, is desirable.

Where there is ample space and a decided taste for the genus, a camellia garden, containing all the species and varieties, might be formed in the following manner. Choose a situation, either level, or having a west or south-east aspect; and enclose a circle, a quarter of an acre in extent, with a 9-inch brick wall, built hollow, and having holes about the size of the end of a brick at 3 ft or 4 ft. apart, immediately under the coping, for the purpose of receiving rafters for supporting a temporary roof of thatched hurdles or of boards. Against both sides of this wall all the more tender sorts of camellia might be planted; and the interior of the area might be devoted to the hardier sorts, to the green tea, and to other half-hardy and evergreen shrubs from China and Japan, such as Illícium, Magnòl*ia* fuscàta, &c. Where a number of conservative gardens are to be placed together, the walls may be arranged in the form of pentagons, by which means, as in the cells of the honey-bee, no space would be lost. The form of the garden being either circular or pentagonal, and the walls being hollow, the latter need not be more than a brick in width, and they may be carried to the height of 10 ft., which will be sufficient. Being hollow, they might all be heated by steam from one boiler, a small steam pipe being conducted along their foundations.

GENUS II.



THÈA L. THE TEA TREE. *Lin. Syst.* Monadélphia Polyándria.

Identification. Lin. Gen., No. 668.; Dec. Prod., 1. p. 530.; Don's Mill., 1. p. 577.
Derivation. Altered from *tcha*, the Chinese name for tea.

Gen. Char., &c. *Calyx* of 5 sepals. *Petals* 5—9, disposed in two or three rows, cohering at the base. *Stamens* almost unconnected to the very base. *Anthers* roundish. *Style* trifid at the apex. *Capsules* of 3 almost distinct carpels, 3-seeded; the dissepiments are formed from the edges of the valves being bent inwards. Beautiful evergreen shrubs from China. (*Don's Mill.*, i. p. 577.) The species, in general appearance, closely resemble camellias, with which genus they are united by various botanists. The leaves are large, shining, laurel-like, and the flowers white, axillary, pediceled, and sweet-scented. The culture may be considered the same as that of the camellia, but some of the species are less hardy.

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⌂ 1. *T.* VI´RIDIS *L.* The *common, or* green *Tea.*

Identification. Lin. Sp., 735.; Don's Mill., 1. p. 577.
Synonymes. *T. Bohèa* stricta *Ait. Hort. Kew.*, ed. 2. vol. 3. p. 303.; *T.* sinénsis *Sims, Bot. Mag.*, t. 998.; *S.* chinénsis var. α víridis *Dec. Prod.*, 1. p. 530.; Caméll*ia* víridis *Link, Enum.*, 2. p. 73.; *Thèa* cantonénsis *Lour. Coch.*, p. 339.
Engravings. Lodd. Bot. Cab., t. 227.; Woodv. Med. Bot. Suppl., 116. t. 256.; Black. Herb., t. 351.; Letts. Mon., t. 1.; and our *fig.* 102.

Spec. Char., &c. Leaves elliptic-oblong, serrated, 3 times longer than broad. Flowers of 5 sepals and 5—7 petals, axillary, solitary, erect. Fruit nodding, dehiscent. (*Don's Mill.*, i. p. 577.) An evergreen shrub, with light green laurel-like leaves, and large white fragrant flowers, which are produced from September till December. Introduced from China in 1768. Height from 6 ft. to 8 ft.

⌂ 2. *T. BOHE´A* L. The Bohea, *or Black, Tea.*

Identification. Lin. Sp., 743.; Don's Mill., 1. p. 577.
Synonymes. *T.* chinénsis β *Bohèa* Sims, Bot. Mag., t. 998.; Dec. Prod., 1. p. 530.
Engravings. Lodd. Bot. Cab., 226.; Lois. Herb. Amer., t. 255.; Kæmpf. Amœn., t. 606.; Sims, Bot., t. 998.; and our *fig.* 103.

Spec. Char., &c. Leaves elliptical-oblong, obtuse, crenated, twice as long as broad. Flowers of 5 sepals, and 5 petals, axillary, twin or ternary. (*Don's Mill.*, i. p. 577.) An evergreen shrub, with dark green leaves, much smaller than those of the preceding species; and white flowers, also smaller, but fragrant. Introduced from China in 1780, and generally treated as a frame or green-house plant.

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History, Uses, &c. The genus *Thèa* (forming the *Theàceæ* of Mirbel, and included in the Camell*ièæ* of Jussieu and De Candolle) is almost exclusively confined to China, Japan, and some of the neighbouring islands; but, as the species are plants which have been cultivated for an unknown length of time, it is difficult to ascertain their native country. Of late, the *Thèa* víridis has been discovered in Upper Assam through an extent of country of one month's march, and within the East India Company's territories, from Sadiya and Beesa to the Chinese frontier of the province of Yunnan, where the shrub is cultivated for the sake of its leaf. This discovery was made in 1826, by Mr. David Scott; and an account of it is given in the *Journal of the Asiatic Society of India* for January 1835, and in the *Gardener's Magazine*, vol. xi. p. 429. It appears that the inhabitants of these countries are in the habit of boiling the stalks and leaves, and then squeezing them into a ball, which they dry in the sun, and then retain for use.

Much has been written on the plant which produces the tea of commerce. Dr. Lettsom, who wrote a pamphlet on the subject in 1772, asserts that all the different kinds of tea brought to Europe are the produce of *Thèa* víridis, and that the whole difference in the qualities of teas depends, not on the species of plant, but on the soil and climate in which the plants are grown, the different ages and periods at which the leaves are gathered, and the different modes of preparing and drying them. A green tea plant, he asserts, planted in the bohea tea country, will produce bohea tea; and a plant from the bohea tea country, planted in the green tea country, will produce green tea. Among all the different opinions that have been advanced on the subject, this appears to us by far the most plausible. It is said, however, that *Thèa Bohèa* is cultivated in the southern provinces, as the *Thèa* víridis is in the north; and that hyson, and all its numerous varieties, are made from the latter; and bohea, and all its varieties, from the former: but, comparing the price of green and black tea in this country, and the quantity of the latter which is consumed in proportion to that of the former, it is difficult to believe that the black teas are all made from the leaves of *Thèa Bohèa*, which is a very distinct species, constitutionally much more tender than *Thèa* víridis, and of comparatively slow and diminutive growth. From Kæmpfer, Thunberg, and Siebold we learn that the tea plant is extensively cultivated in Japan, the various islands of which extend from 30° to 41° of north latitude; from which, in considering its extensive culture in China, and the great extent of territory where it is found indigenous, it is easy to conceive that its varieties may be as numerous as those of the grape vine or the apple are in the south of Europe. Mr. Reeves has disputed, in *Gard. Mag.*, vol. ix. p. 713, 714., the correctness of some of Mr. Main's statements. Whoever wishes to pursue this subject at greater length, and to consult a digest of all that has been hitherto written on it, may peruse Royle's *Illustrations*, from p. 108. to p. 113.

The *Thèa* víridis is sufficiently hardy to stand the air in the neighbourhood of London, with little or no protection. There are bushes of it from 6 ft. to 8 ft. high, and 20 ft. or more in circumference, in the Mile End Nursery, which, in severe winters, have only a little pea-haulm or a mat thrown over them. There are, also, large plants at Syon, at Purser's Cross, at Vere's Villa, at Brompton, at Upton, near Ham, at Lady Tankerville's, Walton on Thames (40 years old, and 8 ft. high), &c., which, we believe, have never received any protection whatever. The plants at Mile End are in a deep sandy loam, and they are remarkable for sending down their strong, thick, black roots in a perpendicular direction to a great depth. There is a plant at Farnham Castle, Surrey, almost as large as those in the Mile End Nursery; and there are plants at White Knights, and at various other places, which leave no doubt of the hardiness of this species. Indeed, it thrives far better in the open air than in pots; probably owing to its constitutional habit of throwing down its roots perpendicularly to a great depth. The only conservatory in which we have seen it in a prosperous state is that at Cashiobury, in Hertfordshire, where the glass roof is taken off during the greater part of the year. The plant not only flowers freely in the open air, but sometimes, as at Farnham Castle, it ripens seed. It is easily propagated by layers; and its general treatment, both in the nursery and in the pleasure-ground, as a half-hardy shrub, may be considered the same as that of the camellia; with this difference, that, being more of a bush than that plant, and loving the shade still more, it does not seem to answer so well against a wall. In the warmest parts of Devonshire, and the south of Ireland, it might be grown as an article of field culture for its leaves; and, if our prejudice in favour of the Chinese mode of preparation could be got over, and the leaves could be slightly fermented, and dried in the same manner as the best meadow hay is about London, being afterwards compressed into cakes to keep for use, the principal nations of Europe might easily grow their own tea, instead of importing it from China, if such a measure were found necessary, or thought desirable. The culture of the plant for commercial purposes has been tried at Rio Janeiro, at Algiers, and, we believe, in Australia. There is much less difficulty in growing the plants, than in preparing the leaves in the Chinese manner; and, as this is principally performed by manual labour, it can only be done profitably where the population is extremely numerous, and the means of living proportionably as cheap as in China or India. At some future time an imitation of this process will, probably, be effected by means of steam.

The black tea (*Thèa Bohèa*) is a much more delicate plant, and is very seldom to be seen in England in the open air in a thriving state. It will neither thrive in pots, nor do well in a conservatory, unless it is quite close to the glass. The best situation for it seems to be a pit, where it may be covered with glass during winter, and exposed to the air during summer. In a conservative arboretum, it may be preserved by placing litter, fern, or spruce branches round the roots, and covering the top with a case of wickerwork, which, in climates colder than that of London, may be thatched. There are stools of it in the open ground in the Kensington Nursery, and in some others; but they are protected with mats in winter.

* *Other Species and Varieties of* Thèa.

✿ 3. *T.* COCHINCHINEˊNSIS *Lour.*, the Cochin-China Tea,

is said to have narrower leaves than the other species, and to have 1-seeded fruit opening at the apex. It is a shrub, growing 8 ft. high, and the leaves are used by the inhabitants of Cochin-China medicinally, as a sudorific and refrigerant. It has not yet been introduced into Britain, and is, in all probability, only a variety of the green tea.

✿ 4. *T.* OLEOˋSA *Lour.*, the oily Tea,

has lanceolate leaves, and peduncles 3-flowered, and auxillary. An oil is said to be obtained from the seed of this shrub, which has not yet been introduced into Britain.

A species of tea grown in the province of Canton, with a pale-coloured leaf, which is occasionally mixed with Congou tea, is mentioned by Mr. Reeves (*Royle's Illust.*, p. 111.); and this, with the numerous other sorts which are, doubtless, in cultivation in China and Japan, may be expected in Britain at some future period.

Sect. III. *Anticipated Ternströmi*àceæ.

We have already mentioned that there are, undoubtedly, many varieties of Camélli*a* japónica in China and Japan which have not yet found their way to Britain; and there can be no doubt that the varieties of the green tea are still more numerous. In p. 173., it appears that Eùrya acuminàta, which belongs to this order, is likely to be hardy. This shrub, Mr. Royle observes, attains the height of about 8 ft. or 10 ft., and is common in the Himalaya at an elevation of 6500 ft. The leaves are thick, coriaceous, finely serrated, smooth, and the young ones hairy. The flowers, owing to the early fall of the leaves from the lower parts of the branches, appear to be lateral; but they actually rise out of the axils of the fallen leaves. The plant is a handsome evergreen bush, well meriting introduction. (*Royle's Illust.*, p. 128.)

CHAP. XX.

OF THE HALF-HARDY LIGNEOUS PLANTS OF THE ORDER AURANTIAˋCEÆ.

We introduce this order for the sake of noticing two genera, the species of which may, with care, be cultivated against flued walls without the protection of glass. These genera are Cìtrus and *Limònia.* The species of the first are trees universally known and admired, natives of India; and those of the second Himalayan shrubs, growing at considerable elevations in Nepal.

Orange trees, when first introduced into England in 1595, were grown against a wall at Bedington, in Surrey, and flowered and fruited there for many years; till, as Evelyn informs us (see *E. of Gard.*, ed. 1835, p. 967.), they were neglected. With a little care, and without the expense of glass, there can be no doubt that all the Cìtrus family might be grown against a hot wall in the climate of London, in as great, or greater perfection, than they are now to be seen in those formal artificial contrivances, tubs and boxes kept under glass, and which are far more expensive than hollow walls to be heated by steam or smoke flues, and protected by thatched hurdles, or reed or straw mats. Those who have seen the walls covered with orange and lemon trees at Woodhall in West Lothian, at Coombe Royal in Devonshire, and at M. Fion's in Paris, will not wonder at our great anxiety to encourage the culture of this plant in the conservative manner. We have also seen fine orange trees in the neigh-

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bourhood of Paris, grown as standards in the open air, but enclosed during winter with double glass cases, which are removed in May, and replaced in September; the outer case being covered with straw mats, for weeks together, in severe weather. When the wood of the orange tree is ripened, and the sap is set to rest by withholding water, it may be kept in the dark, for two or three months together, without injury, provided the air be kept dry. The hardiest kind of orange appears to be the Seville, or bitter, orange. (*fig.* 104.) Mr. Spence, who passed some winters in Florence, states (*Gard. Mag.*, vol. vii. p. 308.) that the bitter orange is by far the most hardy variety grown in Italy; and that, in the neighbourhood of Florence, where the cold is so great that skating is sometimes practised occasionally during four months of the year, and where, in the winter of 1829-30, the thermometer was repeatedly down to 26° and 24° Fahr. at 8 A. M., there are standards in the open air, in sheltered situations, but not planted near a wall, with stems from 4 in. to 6 in. in diameter, which pass the most severe winters with no other injury than having the points of the last year's shoots turned a little yellow. The bitter orange is in general use among the Italians, as a stock for grafting all the other sorts on; another proof that it is one of the hardiest and most vigorous-growing sorts. When a trial is to be made in England, we would recommend commencing with this variety; and protecting the ground by litter, and both sides of the wall by mats or boards, for several years, till the plants were fully established. The simple protection of straw mats, placed over the trees, might, probably, be found enough afterwards, at least in favourable situations. The walls should always be flued, or hollow, in order to afford the opportunity of lighting a fire occasionally. The north side of the wall might be kept warm by ivy; or, if it were an east and west wall, it might be clothed with half-hardy trees on both sides, and protected accordingly.

As examples of different species of the genus *C*itrus which have attained large dimensions in the open air in England, we cite the following from different places in Devonshire. At Salcombe, near Kingsbridge, in the garden of the Rev. Mr. Henshaw, are two walls covered with fine healthy orange trees: one wall has a broad coping, and glass shapes for placing before the trees in severe winters; the other has reed hurdles for the same purpose, and, though this sometimes excludes the light for three months, it is considered a better protection than the glass. The kinds are, the common, Seville, and blood-red orange, and the citron, lemon, lime, and shaddock. At Dartmouth, in the garden of Mr. Strong, is a very large citron tree. At Luscombe, the seat of C. Hoare, Esq., there are some remarkable large trees of citrons, shaddocks, and limes, which grow so vigorously, that they make shoots of from 6 ft. to 7 ft. in length in one year. They were raised from cuttings on the spot; and, the third year after being planted out, they produced a number of fine fruit, some of the lemons measuring from 15 in. to 18 in. in circumference, and weighing 14 oz. (See *Gard. Mag.*, vol. ii. p. 29.) At Kitley, the seat of E. P. Bastard, Esq., there is a remarkably hardy variety of the shaddock, raised on the spot, and known as the Kitley shaddock, which is much hardier than most other sorts of *C*itrus. At Coombe Royal, the seat of John Luscombe, Esq., are a number of lime, citron, orange, and lemon trees, of which a description will be found in the *Gard. Mag.*, vol. x. p. 36. The trees are planted against a south wall, which is divided by buttresses, forming recesses in which the trees are trained in the manner of common fruit trees. Each recess is 12½ ft. wide, and about the same in height; and is protected, during the winter, by a frame of wood, which is wholly removed in the summer, and partially by day, at other seasons; the trees only requiring to be guarded from severe frost. A more interesting sight cannot well be imagined by the lovers of horticulture, than that which is presented by these trees on a sunny day in winter, when the open frames furnish a display of the richest foliage, and of fruit rivalling the produce of foreign countries. The soil, which is seldom manured, is light and rich, on a slaty substratum, and seems admirably adapted to trees of the citron tribe. The situation in which they are grown is in a sheltered valley, protected from wind. It is necessary to add, that the lime is grown under glass in winter; but it is believed that the tree would thrive equally well under wood, and be more secure from frost and storms; a fine tree, in full bearing, having been destroyed, a few years since, by the accidental breaking of a pane or two of glass in winter. The fruit is produced abundantly by the citron, oranges, and lemons; by the lime more sparingly, from the tree being young, and in a vigorous growing state; and, when gathered at a proper period, the fruit is of a fine flavour, and full of juice. Citrons are every year ripened measuring from 15 in. to 18 in. in circumference; lemons, 11 in. by 9 in.; and oranges, 10 in. by 9 in.; weighing from 5 oz. to 9 oz. The leaves are generally 11 in. long, and 6 in. or 7 in. wide. (See *Gard. Mag.*, vol. x. p. 36.)

The genus *Limònia* (from *lymoun*, the Arabic name of the citron, Latinised) is not very well known; but it includes thirteen or fourteen species, all of which bear more or less affinity to the genus *C*itrus. The species likely to prove hardy or half-hardy are the following, L. *Laurèola* Dec., a native of Nepal, with leaves like those of *D*àphne Laurèola, and white flowers, and which is found on the top of cold and lofty mountains, where it is, for some months in the year, buried under the snow. The leaves are highly fragrant; and are, like others of a similar kind, Mr. Royle informs us, employed in the religious ceremonies of the inhabitants of the hills. There can be no doubt of this species of *Limònia* being perfectly hardy. — L. *citrifòlia* Willd. is a native of China, and has white flowers and red berries, with simple or trifoliate leaves. — L. *parviflòra* Bot. Mag., t. 2416., has impari-pinnate leaves, and white flowers. It is a native of China, and grows to the height of 6 ft. — L. *ambigua* Dec. is said to be cultivated in East Florida; but very little is known of this and the preceding species. — L. *austràlis* is a native of New Holland, where it forms a tree 25 ft. high; and there is a plant of it at Kew, introduced in 1830. There are four other species of this genus in our stoves and green-houses; but *L.* Laurèola remains to be introduced by Mr. Royle, or some other patriotic individual.

CHAP. XXI.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER *H*YPERICÀCEÆ, AND TRIBE *H*YPERÍCEÆ.

DISTINCTIVE Characteristics. Thalamiflorous. (*H. B.*) Sepals 4 or 5, unequal, with an imbricate æstivation. Stamens, in nearly all, numerous, and in 3 or more parcels. Fruit, a capsule or berry of many valves and many cells; the edges of the valves curved inwards. Seeds attached to a placenta in the axis, or on the inner edge of the dissepiments. Leaves dotted; in most, opposite and entire. Flowers, in most, yellow. Sap yellow, resinous. (*Lindley, Introd. to N. S.*)

Description, &c. The hardy ligneous plants belonging to this order are all shrubs or undershrubs sub-evergreen or deciduous; with dotted leaves, smooth, oblong, or lanceolate; and yellow flowers. They are natives of Europe, North America, or Asia. Some few of Africa, but more of Australia. Medicinally, they are bitter and slightly astringent: the soft parts of many species contain a fragrant oil, and others secrete a yellow juice: from a Mexican species the gum Squitum Gulla of commerce is produced. In gardening, these shrubs must be considered more as flowering shrubs for dry borders, than as woody plants of permanent duration in the arboretum or shrubbery. There are, however, one or two exceptions. All the species throw up abundance of side suckers, and are readily propagated by division of the plant, or by cuttings; and some of them ripen seeds. They will grow in any soil, not too stiff, or too much charged with moisture.

*H*YPE´RICUM *L.* Capsule membranous. Stamens numerous, disposed in 3 to 5 bundles at the base.

*A*NDROSÆ`MUM *Chois.* Capsule baccate, 1-celled. Calyx 5-parted. Stamens numerous, monadelphous at the base.

GENUS I.

*H*YPE´RICUM *L.* THE ST. JOHN'S WORT. *Lin. Syst.* Polyadélphia Polyándria.

Identification. Lin. Gen., 392.; Juss., 255.; Dec. Prod., 1. p. 543.; Don's Mill., 1. p. 601.

Synonymes. Fuga Dæmonum; Mille Pertuis, *Fr.*; Johannis Kraut, *Ger.*

Derivations. The name of *H*ypéricum is as old as the time of Dioscorides; but its origin and meaning are uncertain. Some derive it from the Greek words *huper*, under, and *eikōn*, an image; and suppose it to signify that the upper part of the flower represents a figure. Others state that *huper* signifies through, and that the name alludes to the pellucid dots in the leaves, which form small lenses, through which, when held up to the light, images might be seen. Donnegan, in his *Lexicon*, conjectures the word *H*ypéricum to be taken from *huper*, for, in the place of, &c., and *ereikē*, heath; from the plant bearing some resemblance to the heath. By others, the word is supposed to be composed from *huper*, through, on the other side, and *eikō*, to resemble; from the pellucid dots resembling holes or pores; and the French name of the plant, Mille Pertuis, a thousand pores, is evidently derived from the same source. The English name, St. John's Wort, and the German one, Johannis Kraut, are taken from the country people formerly, both in England and Germany, being in the habit of gathering this plant on St. John's day, to use it to protect themselves from evil spirits. This plant, with some others, was employed to make what was called John's fire, which was supposed to be a security, for those who kindled it, against witchcraft and all attacks of demons. For this reason, also, the *H*ypéricum received the name of Fuga Dæmonum.

Gen. Char. &c. *Capsules* membranous. *Stamens* numerous, free or joined at the bases into 3 or 5 bundles. *Petals* 5. *Sepals* 5, more or less connected at the base, unequal, rarely equal. *Styles* 3 to 5, rarely connate in one, manent. *Capsule* 1- or many-celled, many-seeded, 3—5-valved. Integument of seed double. *Albumen* none. *Embryo* with the radicle situated at the umbilicus, and with semicylindrical cotyledons. (*Don's Mill.*, i. p. 601.)—Low sub-evergreen shrubs; with yellow flowers, and oppositely placed sessile or subsessile leaves, usually full of pellucid dots on their disks, and some dark ones on their edges, lodging an essential oil. They are chiefly natives of Europe, and vary in height from 1 ft. to 5 ft. They are all considered medicinal, being powerfully astringent, and were formerly in great request by herbalists and other empirical practitioners. Gerard gives a receipt for making a balsam of them in his *Herbal*; which, he says, is " a most pretious remedie for deep wounds, and those that are thorow the body; for the sinues that are prickt, or any wound made with a venomed weapon." (*Johnson's Gerard*, p. 541.)

§ i. *Ascyreìa* Chois. Prod. Hyp.

Derivation. From *a*, not, and *skuros*, hard; that is to say, plants soft to the touch.

Sect. Char. Sepals connected at the base, and unequal. Stamens numerous. Styles 3 to 5. Flowers terminal, large, few, subcorymbose. (*Don's Mill.*, i. p. 601.)

A. *Styles commonly* 3.

1. *H.* ELA'TUM *Ait.* The tall St. John's Wort.

Identification. Ait. Hort. Kew., ed. 2. vol. 3. p. 104.; Don's Mill., 1. p. 601.
Engravings. Juss. Ann. du Mus., 3. p. 162. t. 17.; Wats. Dend. Brit., t. 85.

Spec. Char. &c. Younger stems reddish. Leaves ovate-oblong, acute, dilated at the base, somewhat emarginate, with the margins somewhat revolute. Flowers corymbose. Peduncles bibracteate. Sepals ovate-oblong. (*Don's Mill.*, i. p. 601.) Height 5 ft. A sub-evergreen shrub, native of North America, with yellow flowers in July and August. Introduced in 1762. Propagated by layers or division, and of the easiest culture in common garden soil.

2. *H.* HIRCI'NUM *L.* The Goat-scented St. John's Wort.

Identification. Lin. Sp., 1103.; Don's Mill., 1. p. 602.
Synonymes. Tràgium *Clus.*; Androsæ'mum fœ'tidum *Bauh.*, *Park*, and *Ray.*; Mille Pertuis à Odeur de Bouc, *Fr.*
Engravings. Schkuhr. Handb. 3. t. 213. f. 3.; Wats. Dend. Brit., t. 87.; and our *fig.* 105.

Spec. Char. &c. Branches winged. Leaves somewhat emarginate at the base, dilated, sessile, acute at the apex, ovate-lanceolate, with glandular margins. Peduncles bibracteate. Stamens exceeding the corolla in length. Seeds 2, appendiculated. (*Don's Mill.*, i. p. 602.) A deciduous undershrub, from the shores of the Mediterranean in 1640, and producing its yellow flowers from July to September. Height, from 3 ft. to 4 ft. The leaves of this species, when bruised, have a very disagreeable smell, resembling that of a goat, whence its name. Plants, in London, cost 6*d.* each; at Bollwyller, 50 cents.

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Varieties. H. *h.* 2 *obtusifòlium* Dec. has blunter leaves than the original species, and is found on the mountains of Corsica, on humid rocks. H. *h.* 3 *mìnus* Wats. is a smaller plant than the other, figured in *Dendrologia Britannica*, t. 87.

3 *H.* GRANDIFLO'RUM *Chois.* The large-flowered St. John's Wort.

Identification. Chois. Prod. Hyp., p. 38. t. 3.; Don's Mill., 1. p. 602.
Synonyme. *H.* canariénse *Willd.*, not of Lin.
Engravings. Chois. Prod. Hyp., t. 3.

Spec. Char., &c. Stem round, reddish. Leaves ovate-oblong, cordate, somewhat clasping, acute at the apex, netted with pellucid veins. Flowers corymbose. Peduncles bibracteate. Calyx acutish, reflexed upon the peduncle after flowering, much shorter than the corolla. (*Don's Mill.*, i. p. 602.) A half-hardy evergreen shrub, from Teneriffe in 1818, producing its fine large yellow flowers in July and August. Height 3 ft. It is commonly treated as a green-house plant; but, considering its native country, there can be no doubt that it would stand very well against a conservative wall.

4. *H.* FOLIO'SUM *Ait.* The leafy St. John's Wort.

Identification. Ait. Hort. Kew., ed. 1. vol. 3. p. 104.; Don's Mill., 1. p. 602.
Synonyme. Shining St. John's Wort.

Spec. Char., &c. Branches winged. Leaves sessile, oval-oblong, rather acute, finely perforated. Calyx lanceolate, caducous. (*Don's Mill.*, i. p. 602.) A deciduous undershrub, introduced from the Azores in 1778, and producing its yellow flowers in August. Height 2 ft. It is commonly treated as a green-house plant; but, in a dry sheltered situation, it requires very little protection.

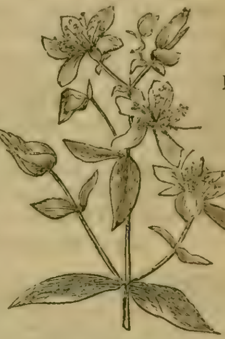
5. *H.* FLORIBU'NDUM *Ait.* The abundant-flowered St. John's Wort.

Identification. Ait. Hort. Kew., ed. 1. vol. 3. p. 104.; Don's Mill., 1. p. 602.
Synonymes. *H.* frutéscens *Comm. Hort. Amst.*, p. 137.; many-flowered St. John's Wort.
Engravings. Comm. Hort. Amst., t. 68.

Spec. Char., &c. Stem round. Leaves sessile, lanceolate, numerous, without dots. Peduncles dilated, and somewhat compressed towards the apex. Calyx obtuse. Corolla and stamens marcescent. (*Don's Mill.*, i. p. 602.) A deciduous undershrub, from the Canary Islands in 1779, producing its yellow flowers in August. Height 3 ft. It is usually treated as a green-house plant; but it is capable of resisting the winters of the climate of London, in a warm situation, with very little protection.

6. *H.* OLY'MPICUM *L.* The Olympian St. John's Wort.

Identification. Lin. Sp., 1102.; Sm. Ex. Bot., 2. p. 71.; Dec. Prod., 1. 545.
Synonymes. *H.* móntis olýmpi *Wheel. Itin.*, *Ray*; *H.* orientàle flòre màjus *Tourn.*
Engravings. Sm. Exot. Bot., 2. t. 96.; Bot. Mag., t. 1867.; and our *fig.* 106.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Spec. Char., &c. Stem round. Leaves elliptical-lanceolate, rather acute, full of pellucid dots. Calyx ovate, acute. Peduncles bibracteate. Corolla and stamens withering. (*Don's Mill.*, i. p. 602.) An interesting little shrub, with glaucous sessile leaves, native of Mount Olympus and China, introduced in 1706, and producing its yellow flowers from July to September. It grows to the height of from 1 ft. to 2 ft., and requires protection during winter. All the half-hardy species of *Hypéricum* might be grown on a conical piece of rockwork, a sort of miniature Mount Olympus, in a warm sheltered part of the pleasure-ground or arboretum. The protection required in winter might be given with complete effect, and at very little expense, by resting a number of poles on the protruding points of the larger rocks or stones, and on these placing thatched hurdles, or even, in warm districts, a few spruce fir branches.

7. *H.* CANARIE'NSE *L.* The Canary *Island* St. John's Wort.

Identification. Lin. Syst. p. 575.; Dec. Prod., 1. p. 544.; Don's Mill., 1. p. 602.
Engraving. Lodd. Bot. Cab., 953.

Varieties. De Candolle notices two: *H.* c. triphýllum, and *H.* c. salicifòlium.

Spec. Char., &c. Stem bluntly quadrangular. Branches compressed. Leaves ovate-lanceolate, acute. Calyx ovate, obtuse. Styles 3—4, diverging. (*Don's Mill.*, i. p. 602.) A neat little shrub, a native of the Canary Islands, introduced in 1699, and producing its yellow flowers from July to September. Height 4 ft. It is commonly kept in green-houses or frames; but, like most of the other plants from the Canary Islands and similar climates, it will endure a London winter in the open air against a wall, with the protection of litter or leaves over the ground, and a couple of mats over the top.

B. *Styles commonly 5.*

8. *H.* CHINE'NSE *L.* The Chinese St. John's Wort.

Identification. Lin. Amœn., 8. p. 323.; Dec. Prod., 1. p. 545.; and Don's Mill., 1. p. 602.
Synonyme. *H.* monógynum *Mill. Illust.*, 151.; *H.* aúreum *Lour.*
Engraving. Mill. Illust., 151. f. 2.

Spec. Char., &c. Stem round. Leaves elliptical, obtuse, with a few black dots. Peduncles bibracteate. Calyx oblong, obtuse, beset with black dots. Styles collected together. (*Don's Mill.*, i. p. 602.) A sub-evergreen shrub, a native of the East Indies and the Cape of Good Hope; introduced in 1753, and producing its yellow flowers from March to September. Height 3 ft. It is marked in the *Catalogues* as a green-house plant: it would, in all probability, endure the open air, with protection, during winter. It stood at Biel, in East Lothian, in 1825, in an exposed situation. A species bearing this name has stood against the wall in the garden of the London Horticultural Society, for four years, with very little protection. There is a species, named H. *monógynum* L., not of Miller, which is figured in *Bot. Mag.*, t. 334., which appears to be different from this one. It is a native of Japan and China, and grows to the height of 3 ft. In Nepal, a species nearly allied to this (H. *cérnuum Rox.*, *H.* speciòsum *Wall.*) is met with on hills at 3000 ft. of elevation.

9. *H.* CORDIFO'LIUM *Chois.* The heart-leaved St. John's Wort.

Identification. Dec. Prod., 1. p. 545.; Don's Mill., 1. p. 602.
Synonymes. *H.* bracteàtum, and *H. Lungùsum* Ham. MS. in D. Don. Prod., p. 317.

Spec. Char., &c. Stem round. Leaves elliptical, acute, coriaceous, smooth, somewhat stem-clasping, without dots; flower-bearing branches leafy below, crowded Bracteas ovate-cordate, acute. Sepals ovate, mucronate, without dots. Petals oblong, unequally sided, obliquely mucronulate. Stamens short. Styles unconnected, scarcely longer than the corolla. (*Don's Mill.*, i. p. 602.) A sub-evergreen shrub from Nepal, in 1825, producing its yellow flowers from April to October. Height 2 ft. It is commonly kept in a frame, but would stand our winters, in a warm situation, with a very little protection.

10. *H.* PA'TULUM *Thun.* The spreading St. John's Wort.

Identification. Thun. Jap., p. 295. t. 17.; Don's Mill., 1. p. 603.
Engraving. Thun. Jap., t. 17.

Spec. Char., &c. Stem round, purplish. Leaves ovate-lanceolate, acute, tapering to the base with revolute margins, without dots. Flowers corymbose. Styles recurved at the apex, scarcely longer than the stamens. Peduncles bibracteate. Sepals sub-orbicular, very obtuse. (*Don's Mill.*, i. p. 603.) An evergreen shrub, a native of Japan and Nepal, introduced in 1823, and producing its yellow flowers from June to August. Height 6 ft.

11. *H.* KALM*IAˋNUM* Lam. Kalm's St. John's Wort.

Identification. Lam. Dict., 4. p. 148.; Don's Mill., 1. p. 603.
Synonymes. *H.* Bartràm*ium* Mill.; Virginia St. John's Wort.

Spec. Char. &c. Branches tetragonal. Leaves linear-lanceolate. Flowers 3 to 7, in a terminal corymb. Sepals lanceolate, bluntish. (*Don's Mill.*, i. p. 603.) A sub-evergreen undershrub; a native of North America, in Pennsylvania and Virginia; introduced into England in 1759, and producing its yellow flowers in June and July. Height 3 ft. It was found by Mr. James M'Nab in great abundance in the neighbourhood of the Falls of Niagara, in dry places; and a variety of it (*H.* K. elongàtum) was found in moist places in New Jersey. This variety has flowers somewhat smaller than those of the species, but they are equally rich in colour. (*Ed. N. Phil. Journ.*, vol. xix. p. 38.) This species is ornamental, forming a very neat compact bush, and is in very general cultivation. American seeds may be procured, in London, at 6*d.* a packet, and plants at 9*d.* each; at Bollwyller, 1 franc; and at New York, 25 cents.

12. *H. URAˋLUM* Ham. The Urala St. John's Wort.

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Identification. D. Don Prod. Nep., p. 218.; Don's Mill., 1. p. 607.
Derivation. From its name, *Urala swa*, in the Newar language.
Engravings. Bot. Mag., t. 2375.; and our *fig.* 107.]

Spec. Char., &c. Branches compressed, 2-edged. Leaves elliptical, mucronulate, smooth, shining. Flowers terminal, somewhat corymbose. Sepals oval, very blunt. Petals orbicular. Styles shorter than the stamens. (*Don's Mill.*, i. p. 603.) An undershrub, growing 2 ft. high, introduced from Nepal, where it is found on the tops of mountains, in 1823; and producing its yellow flowers from July to September. In mild situations, and on a dry soil, it may safely be left through the winter without any protection; but this should not be the case where the situation is cold, and the soil tenacious or humid.

13. *H.* CALYCIˋNUM *L.* The *large*-calyxed St. John's Wort.

Identification. Lin. Mant., 106.; Willd., 3. p. 1442.; Hook. Scot., 221.; Dec. Prod., 1. p. 546.; Smith's Eng. Fl., 3. p. 323.; and Don's Mill., 1. p. 603.
Synonymes. *A*ndrosæˋmum constantinopolitànum flòre máximo *Wheeler's Journey*, 205.; the large-flowered St. John's Wort; the large-flowering Tutsan; the terrestrial Sun; Aaron's Beard; Mille Pertuis à grandes Fleurs, *Fr.*; grossblumiger Johannis Kraut, *Ger.*
Derivations. This species was called *A*ndrosæˋmum by the old writers on botany, on account of the tinge of red in different places on the stems, and the redness of the anthers, which were supposed to give it the appearance of being spotted with blood. It was called Constantinopolitan from its having been found near that city, in 1676, by Sir George Wheeler, Bart. The large size of its flowers is remarkable, and has given rise to most of its other names. The name of the Terrestrial Sun is very appropriate to the large golden flowers, with their long ray-like stamens, lying glittering on their bed of dark green shining leaves, which spread over the surface of the ground. The number and length of the stamens are, doubtless, also the origin of the name of Aaron's Beard.
Engravings. Eng. Bot., v. 29. t. 2017.; Bot. Mag., t. 146.; Jacq. Frag., 10. t. 6. f. 4.

Spec. Char. Stem tetragonal, dwarf. Leaves ovate, coriaceous, broad, full of pellucid dots. Flowers large, terminal, solitary. Sepals large, obovate, spreading; capsule nodding. (*Don's Mill.*, i. p. 603.) A beautiful little evergreen, with shining dark green leaves, and bright golden flowers 2 in. or 3 in. in diameter, and having innumerable reddish tremulous anthers. Height from 1 ft. to 18 in. *H.* calycìnum is a native of bushy places in the west of Ireland and Scotland. It is extremely valuable for covering banks, rockwork, or the surface of the ground in old shrubberies or picturesque woods, especially for the latter purpose, as it thrives perfectly well under the drip and shade of trees. The root creeps, and a small plant will soon extend itself in every direction, especially if the soil be light, so as to cover a great many square yards in a very short space of time. It is an excellent shelter for game. Plants may be had, in the London nurseries, at 6*d.* each.

14. *H.* BALEAˊRICUM *L.* The Majorca St. John's Wort.

Identification. Lin. Sp., 1101.; Don's Mill., 1. p. 603.
Engraving. Curt. Bot. Mag., t. 137.

Spec. Char. Stem quadrangular, warted. Leaves ovate, obtuse, rather stem-clasping. An evergreen shrub, with small warted leaves; native of the Island of Majorca; introduced in the year 1714; and producing its yellow flowers from March to September. Height 2 ft. It requires some protection during winter. stood the winter of 1825, in a sheltered situation, at Biel, in East Lothian.

§ ii. *Perforària* Chois.

Identification. Chois. Prod. Hyp., p. 44.; Dec. Prod., 1. p. 546.; Don's Mill., 1. p. 603.
Derivation. From *perforatus*, perforated; because the leaves are full of pellucid dots, which gives them the appearance of being perforated.

Sect. Char. Calyx of 5 equal sepals, toothed in some with glandular teeth, but entire in others, connected at the base. Stamens numerous, free or disposed in 5 sets. Styles commonly 3. Herbs or undershrubs. Flowers axillary, or in terminal panicled corymbs. Leaves rarely linear. (*Don's Mill.*, i. p. 603.) Undershrubs, from 1 ft. to 3 ft. in height.

A. *Sepals entire.*

✱ 15. *H.* PROLI'FICUM *L.* The prolific St. John's Wort.

Identification. Lin. Mant., 106.; Don's Mill., 1. p. 605.
Synonymes. *H.* foliòsum *Jacq.*, *Hort. Schönbr.*, 3. p. 27.; *H.* Kalmiànum Du Roi, Harbk., 1. p. 310.
Engravings. Wats. Dend. Brit., t. 88.; Jacq. Hort. Schönb., t. 299.

Spec. Char., &c. Stem round. Branches angular. Leaves linear-lanceolate, with revolute edges, full of pellucid dots. Corymbs few-flowered. Sepals ovate-lanceolate, stamens very numerous. Styles usually connected together. (*Don's Mill.*, i. p. 605.) A sub-evergreen shrub, from Virginia and Canada, introduced in 1758, and producing its yellow flowers from June till August. Height 4 ft. Frequent in gardens, and forming a dense leafy bush, covered with flowers great part of the summer, and with seed-pods in the autumn. American seeds, in London, 6*d.* a packet; and plants, in London, 9*d.* each; and at Bollwyller, 50 cents each.

ꝛ 16. *H.* HETEROPHY'LLUM *Vent.* The various-leaved St. John's Wort.

Identification. Vent. Hort. Cels, t. 68.; Don's Mill., 1. p. 607.
Engraving. Vent. Hort. Cels, t. 68.

Spec. Char., &c. Stem suffruticose, round. Leaves linear-lanceolate, full of pellucid dots; axillary ones crowded, imbricate, very short, blunt. Sepals acute, somewhat unequal. (*Don's Mill.*, i. p. 607.) A low sub-evergreen undershrub, from Persia, in 1712, and producing its yellow flowers in July and August. Height 2 ft. It requires some protection during winter.

ꝛ 17. *H.* ÆGYPTI'ACUM *L.* The Egyptian St. John's Wort.

Identification. Lin. Sp., 1103.; Don's Mill., 1. p. 607.
Engravings. Lin. Amœn., 8. t. 8. f. 3.; Ker Bot. Reg., t. 196.

Spec. Char., &c. Stem round. Leaves small, ovate, crowded, without dots. Flowers few, almost sessile. Sepals lanceolate, acute. Styles small, diverging. (*Don's Mill.*, i. p. 607.) A sub-evergreen undershrub, with glaucous leaves and small flowers; introduced from Egypt in 1787, and producing its yellow flowers in June and July. Height 2 ft. It requires protection during winter.

ꝛ 18. *H.* GALIÖI'DES *Lam.* The Galium-like-*leaved* St. John's Wort.

Identification. Lam. Dict., 4. p. 160.; Don's Mill., 1. p. 609.

Spec. Char. Stem suffruticose, round, straight. Leaves linear-lanceolate, tapering to the base, broadest at the apex, acute, with revolute dotted margins. Sepals linear, acute, reflexed after flowering. Styles at first connected, but at length free. Capsules conical, very acute. (*Don's Mill.*, i. p. 609.) A sub-evergreen undershrub, native of North America, from New Jersey to Carolina, in sandy moist places near rivulets; producing its yellow flowers from July to September. Height 2 ft.

ꝛ 19. *H.* AXILLA'RE *Lam.* The axillary-*flowered* St. John's Wort.

Identification. Lam. Dict., 4. p. 160.; Don's Mill., 1. p. 609.
Synonymes. *H.* fasciculàtum *Willd. Spec.*, 3. p. 1452., exclusive of the synonymes of Michx., Pursh, Fl. Amer. Sept., 2. p. 376.; *H.* Còris *Walt. Fl. Carol.*, 190.

Spec. Char., &c. Stem shrubby, round, diffuse. Leaves lanceolate-linear, narrowed at the base, with revolute margins. Sepals rather unequal. Styles, at first joined, but afterwards free. (*Don's Mill.*, i. p. 609.) A sub-evergreen undershrub, native of the pine woods of Georgia and Florida; producing its yellow flowers in July. Height 2 ft.

B. *Sepals toothed, usually with the Teeth glandular.*

♄ 20. *H.* GLANDULOˋSUM *Ait.* The glandular St. John's Wort.

Identification. Ait. Hort. Kew., ed. 1. vol. 3. p. 107.; Don's Mill., 1. p. 609.

Spec. Char., &c. Stem shrubby, round, erect, branched. Leaves elliptical-lanceolate, acute, with glandular margins, and pellucid dots. Calyx lanceolate, acute. (*Don's Mill.*, i. p. 609.) A sub-evergreen undershrub, native of Madeira and Teneriffe, introduced in 1777; producing its pale yellow flowers, the petals of which are full of brown dots, from May to August. Height 2 ft. It requires protection during winter.

♄ 21. *H.* SERPYLLIFOˋLIUM *Lam.* The Wild-Thyme-leaved St. John's Wort.

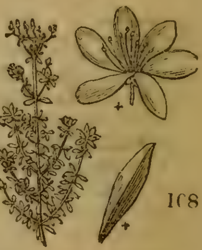
Identification. Lam. Dict., 4. p. 176.; Don's Mill., 1. p. 610.
Engraving. Mor. Hist., 2. p. 469. sect. 5. t. 6. f. 2.

Spec. Char., &c. Stem suffruticose, round. Leaves ovate, obtuse, on very short petioles, with revolute margins. Calyx ovate, obtuse, fringed. (*Don's Mill.*, i. p. 610.) A neat little bush, which has been in cultivation as a half-hardy shrub since 1688. It produces its yellow flowers in July and August, and grows to the height of 1½ ft. It is well adapted for culture in pots; or on the warmest part of rockwork.

♄ 22. *H.* EMPETRIFOˋLIUM *Willd.* The Empetrum-leaved St. John's Wort.

Identification. Willd. Spec., 3. p. 1452.; Don's Mill., 1. p. 610.
Engravings. Dend. Brit., t. 141.; and our *fig.* 108.

Spec. Char., &c. Stems suffruticose, round, with subulate branchlets. Leaves linear, ternary, with revolute margins. Calyx small, obtuse. Petals without glands. (*Don's Mill.*, i. p. 610.) A neat little shrub, a native of the south of Europe, particularly near the Mediterranean; introduced in 1820, and producing its yellow flowers from May to August. Height 2 ft. This is one of the neatest species of the genus, and it well deserves a place on the hypericum mount, suggested under *H.* olýmpicum, p. 399., because it is not altogether hardy. As it is a slow-growing plant, and small in all its parts, it should not be placed immediately adjoining any of the rapid-growing, broad-leaved, or bulky species, unless required in the way of contrast. It would suit very well to accompany *H.* baleáricum, *H.* ericöídes, and *H.* Còris, which are also half-hardy species.



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♄ 23. *H.* COˋRIS *L.* The Coris-*leaved* St. John's Wort.

Identification. Lin. Spec., 1107.; Don's Mill., 1. p. 610.

Spec. Char., &c. Stem shrubby, erect, round. Leaves in whorls, linear, with revolute margins. Calyx linear, bluntish. (*Don's Mill.*, i. p. 610.) A small shrub, of the habit of the last, but a native of the Levant, whence it was introduced in 1640. It produces its yellow flowers from May to September. Height from 1½ ft. to 2 ft. This species stood out, in a sheltered situation at Biel, in the winter of 1825. The plant Còris, which it is said to resemble, is the Còris monspeliénsis *W.*, a herbaceous biennial, one of the Primulàceæ.

♄ 24. *H.* ERICÖIˋDES *L.* The Heath-like St. John's Wort.

Identification. Lin. Spec., 1104.; Don's Mill., 1. p. 611.
Engravings. Cav. Icon., 2. p. 20. t. 122.; Pluk. Phyt., t. 93. f. 5.

Spec. Char., &c. Stem suffruticose, round, twisted, small. Leaves linear, acute, much crowded, dotted, glaucous, small. Sepals acute, hardly glandular. (*Don's Mill.*, i. p. 611.) A neat little heath-like shrub, a native of Spain, Portugal, and the Levant; introduced in 1821, and producing its yellow flowers from June to September. It requires protection during winter.

§ iii. *Bràthyæ* Chois.

Identification. Chois. Prod., p. 58.; Dec. Prod., 1. p. 553.
Derivation. From *brathys*, the Greek name of the savin tree (which is derived from *brazō*, to overheat); in allusion to the habit of the shrubs, which resembles that of the savin tree, or juniper.

Sect. Char. Calyx of 5 entire equal sepals, usually very like the leaves. Stamens numerous, disposed in bundles. Styles 3 to 4. Subshrub, with axillary solitary flowers, and imbricate, whorled, or crowded leaves, which are usually linear-awl-shaped. (*Don's Mill.*, i. p. 611.) Sub-evergreen undershrubs.

A. *Styles* 3, *with simple Stigmas.*

♄ 25. *H.* FASCICULAˋTUM *Lam.* The fascicled-*leaved* St. John's Wort.

Identification. Lam. Dict., 4. p. 160., but not of Lapeyr.; Don's Mill., 1. p. 611.
Synonymes. *H.* aspalathöídes *Pursh, Fl. Amer. Sept.*, 2. p. 376.

Spec. Char., &c. Stem round, compressed at the top. Branches erect. Leaves dense, without dots, channeled, with somewhat revolute margins. Sepals equal, erect. Styles joined. (*Don's Mill.*, i.

p. 611.) An undershrub 1 ft. in height, a native of Carolina; introduced in 1811, and producing its yellow flowers in July and August. Somewhat tender.

App. i. *Other Species of* H*ypéricum.*

The only truly hardy shrubby species of *Hy*péricum are, *H.* elàtum, *H.* hircìnum, *H.* calycìnum, *H.* Kalmiànum, and *H.* prolíficum. The other hardy species are of such low growth, that they may be considered, for all practical purposes, as herbaceous plants. The same may be said of a number of the half-hardy species. The number of these might be increased partly by the addition of H. *rèpens* and H. *linearifòlium,* from the south of Europe; by several species from North America, which will be found noticed in p. 179.; and by a few from Africa. H. *oblongifòlium,* in the list, p. 173., appears to have been lost; and there are, probably, some other Himalayan species which will prove half-hardy. H. *japónicum* Dec. (*Royle* t. 24. f. 2.) is a plant enjoying a very extended distribution, being found in situations where the snow covers the soil for nearly six months in the year, along the Himalayas, and on the Neelgherries. It is also found in Japan. (*Royle's Illust.*, p. 131.)

GENUS II.

*A*NDROSÆ̀MUM *Chois.* THE ANDROSÆMUM, *or TUTSAN. Lin. Syst.* Polyadélphia Polyándria.

Identification. Chois. Prod. Hyp., 37.; Dec. Prod., 1. p. 543.; Don's Mill., 1. p. 601.
Synonymes. *Hy*péricum *L.*; Androsème, *Fr.*; Johanniskraut, *Ger.*
Derivation. From *anēr*, *andros*, a man, and *haima*, blood; the capsules, when crushed between the fingers, giving out a blood-coloured juice. Tutsan is a corruption of *toute saine*, all heal; and it was applied to the plant formerly from its supposed vulnerary properties.

Gen. Char., &c. *Capsule* baccate; usually 1-celled. *Calyx* 5-parted, with unequal lobes. *Petals* 5. *Styles* 3. *Stamens* numerous, disposed in 3 sets. (*Don's Mill.*, i. p. 601.) — An evergreen suffruticose plant, with sessile leaves, and terminal stalked flowers.

1. *A.* OFFICINÀLE *Allioni.* The officinal Androsæmum, *or common Tutsan.*

Identification. All. Ped., No. 1440.; Dec. Prod., 1. p. 543.; Don's Mill., 1. p. 601.
Synonymes. Clýmenon Italòrum *L'Obel*; *Hypéricum Androsæ* mum *Lin.*, *Willd.*, *Smith*, and *Hooker*; Park Leaves (because it is frequently found wild in parks); Androsème officinale, *Fr.*; breit-blättriges (broad-leaved) Johanniskraut, *Ger.*
Engravings. Blackw., t. 94.; Eng. Bot., t. 1225.; and our *fig.* 109.

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Spec. Char., &c. Leaves ovate, and somewhat heart-shaped, sessile, widely spreading. Flower an inch wide. A native of moist shady lanes, thickets, and woods in England, in the western part of Scotland, and not unfrequent in woods in Ireland. It was formerly common in the woods about Hampstead and Highgate, till these were grubbed up, and the land where they grew subjected to cultivation. It is also a native of Italy, Greece, and Cacausus. It forms a dense bush, with many stems, attaining the height of 3 ft. and upwards, and producing its large yellow flowers from July to September. The fruit is an ovate capsule, assuming the appearance of a berry: it is, at first, yellowish green, then red or brownish purple; and, lastly, almost black when ripe. The juice of the capsules, and also that of the leaves, is claret-coloured. The latter, when bruised, have an aromatic scent, and were formerly applied to fresh wounds; and hence the French name of *la toute saine.* In gardening, the plant is valuable as growing under the drip of trees, and thriving and flowering freely in almost any soil or situation. Plants, in the London nurseries, may be obtained at 9*d.* each; and at Bollwyller for 50 cents.

CHAP. XXII.

OF THE HARDY LIGNEOUS PLANTS BELONGING TO THE ORDER *A*CERÀCEÆ.

DISTINCTIVE Characteristics. Flowers either unisexual or bisexual. Calyx and corolla equal in the number of their parts, with an imbricated æstivation; the corolla sometimes absent. Petals without appendages. Stamens inserted upon a disk, which arises from below the pistillum, not agreeing in number with the divisions of the calyx and corolla. Pistillum 2-lobed, each lobe having a wing at its back. Style 1. Stigmas 2. Fruit formed of two samaræ, or keys, each containing 1 cell and 1 erect seed. Embryo curved, with leafy shriveled cotyledons and no albumen. Trees or shrubs, almost all deciduous, with opposite leaves, without stipules. (*Pen. Cyc.*) Calyx 4—9 lobes, mostly 5. Stamens mostly 8. Flowers in axillary corymbs. Sap sugary. (*Lindl. Introd. to N. S.*) Cotyledons, in the germination of the seed, produced above ground. The samaræ in *À*cer Pseùdo-*P*látanus are very rarely 3.

Description. The species are chiefly low and middle-sized deciduous trees, generally with lobed, but, in one or two cases, with entire or pinnated leaves. They are natives of Europe, North America, and the north of India. They are all highly ornamental; some of them valuable for their timber; and from *À*cer sacchárinum, and other species, sugar is extracted. In point of magnitude, the species of the *A*ceràceæ may be arranged in three classes: those of the largest size, having large leaves, and the trunks of a timber size, fit for various purposes in architecture, such as the *A*. Pseùdo-*P*látanus, *A*. eriocárpum, &c.; those of the second size, with small leaves, the timber of which is chiefly used by cabinet-makers, turners, &c., and the trees as copsewood, such as *À*cer campéstre; and those of the third size, with small leaves, which are solely employed for ornamental planting, such as *À*cer monspessulànum, *A*. créticum, &c.

Geography and History. "The maples," Michaux observes, "form extensive forests in the northern parts of North America: these forests appear, with those of the beech, to succeed the spruce fir, the larch, and the pine, and to precede the chestnut and the oak; at least, this is the case between 43° and 46° of N. lat., the region assigned by nature to the true sugar maple." Seven species of *À*cer, and one of *Negúndo*, are described by Michaux. In the *Pen. Cyc.*, under the article *À*cer, understood to be by Dr. Lindley, 34 species are enumerated or described; and, in *Don's Miller* 39 species, of which 26 are in cultivation in British gardens.

Most of the American species are already introduced into Britain; but there are some in the mountainous regions of India, and probably in Japan and China, which are likely to prove hardy in Britain, which are not yet introduced, the names of some of which will be found in p. 173. and p. 176., and in the concluding section of this chapter.

Properties and Uses. The wood of the *A*ceràceæ is moderately hard, compact, and more or less veined: it is useful in various departments of architecture, and is particularly valuable as fuel. Sugar is one of the constituent parts of the sap of all the acers and negundos, though that article is chiefly obtained from two species, which are natives of America.

Soil and Situation. The *A*ceràceæ prefer a free, deep, loamy soil, rich rather than sterile, and neither wet nor very dry. The situation that suits them best is one that is sheltered, and shady rather than exposed. They are seldom found on the north sides of lofty mountains, or on mountains at all, except among other trees; but in the plains they are found by themselves. Though the species only attain perfection in favourable soils and situations, they will spring up and live in any soil or situation whatever.

Propagation and Culture. The *A*ceràceæ are chiefly propagated from seeds; but some sorts are increased by layers, cuttings of the shoots or roots, or by budding or grafting. The seeds of most of the species ripen in October, and they are gathered by hand, or by shaking the tree, when the keys begin to turn brown. The maturity of the seed may be proved by opening the key, and observing if the cotyledons are green, succulent, and fresh; if the green colour of the cotyledons is wanting, the seeds are good for nothing. The seeds of all the species may either be sown in autumn, after they are gathered, or in spring: and the latter method is preferable where moles abound, as they are very fond of the seeds. Sown in spring, they come up in five or six weeks afterwards, with the exception of those of the *A.* campéstre, which never come up till the second or third year. The seeds should not be covered with more than from a quarter to half an inch of soil. The surface of the ground in which they are sown may be advantageously shaded with leaves, fronds of firs, heath, or straw.

The genera which compose this order are three, *A'*cer, *Negúndo*, and *Dobínea;* and the species in cultivation in Britain are of the two former genera, which are thus contradistinguished in *Don's Mill.*, i. p. 647.

*A'*CER *L.* Flowers polygamous. Calyx 5-lobed. Stamens 7—9, rarely 5. Leaves simple, usually lobed.

NEGU'NDO Mœnch. Flowers diœcious. Calyx unequally 4—5-toothed. Anthers 4—5, linear, sessile. Leaves pinnate.

GENUS I.

*A'*CER *L.* THE MAPLE. *Lin. Syst.* Polygàmia Monœ'cia.

Identification. Lin. Gen., No. 1115.; Mœnch. Meth., 334.; Dec. Prod., 1. p. 593.; Don's Mill., 1. p. 648.

Synonymes. E'rable, *Fr.*; Ahorn, *Ger.*; Acero, *Ital.*; and Arce, *Spanish.*

Derivation. From *acer*, hard or sharp, derived from *ac*, Celtic, a point. The name is supposed to be applied to this genus because the wood of some species is extremely hard, and was formerly much sought after for the purpose of making pikes and lances.

Gen. Char., &c. *Sexes* hermaphrodite, or monœciously polygamous. *Flowers* with a calyx and corolla. *Calyx* divided into 5 parts, or some number between 4 and 9. *Petals* the same in number. *Stamens* 8, or some number between 5 and 12. *Anthers* 2-lobed. *Carpels* 2, very rarely 3, each a samara; that is, a fruit which is called, in England, vernacularly, a key.— Leaves lobed and toothed, or, rarely, neither lobed nor toothed. Flowers generally yellow, with more or less of green blended with the yellow; red in *A.* rùbrum: not individually conspicuous, but interesting in the kinds that flower at leafing time, from their number, from the rarity of flowers generally at that season, and from the enlivening effect of the numerous bees, and other insects, that attend them. The tips of the wings of the samaræ of several of the species are of a light red, in England, at the end of summer, and in autumn. The species are middle-sized, or low deciduous trees, natives of Europe, North America, and, some, of the Himalayas. They are, in general, quite hardy in Britain, and most of them ripen seeds in this country, by which they are readily propagated. They are among the most ornamental trees of artificial plantations, on account of the great beauty and variety of their foliage, which changes to a fine scarlet, or rich yellow, in autumn. The larger-growing species are often many years before they come into flower, and, after they do so, they sometimes flower several years before they mature seeds; probably from having the flowers of only one sex. In general it may be observed that there is great uncertainty, in the different species of *A'*cer, with regard to sex.

A. *Leaves simple.*

🌳 1. *A.* OBLO'NGUM *Wall.* The oblong-*leaved* Maple.

Identification. Wall. in Litt.; Dec. Prod., 1. p. 593; Don's Mill. 1. p. 648.

Synonymes. *A. laurifòlium D. Don, Prod. Fl. Nep.*, p. 249.; *A. Buzimpàla* Hamilt.

Engraving. Our *fig.* 113. in p. 433.

Spec. Char., &c. Leaves oblong-lanceolate, acuminated, quite entire, coriaceous, smooth, rounded at the base. Racemes compound; wings of fruit parallel, smooth, separated. (*Don's Mill.*, i. p. 648.) Native of Nepal, where it flowers in February; introduced in 1824. Height 20 ft. This species is rather tender, and somewhat difficult to keep in the open ground. We are not aware of any living plant of it being in the neighbourhood of London; but there is one in the arboretum of John Thomas Brooks, Esq., at Flitwick House, Bedfordshire, which is frequently killed down to the ground during winter, but always shoots up vigorously the following spring. The leaves and general appearance of the shoots resemble those of a eucalyptus; hence its character among maples is so very extraordinary, that to the botanist it must be a species of very great interest.

‡ 2. *A.* TATA'RICUM *L.* The Tartarian Maple.

Identification. Lin. Sp., 1495.; Dec. Prod., 1. p. 593.; Hayne Dend., p. 209.; Don's Mill., 1. p. 648.
Synonymes. E'rable de Tartarie, *Fr.*; Tartarische Ahorn, *Ger.*; Zarza-modon, or Locust Tree, *Russ.*
Engravings. Pall. Fl. Ros., t. 3.; Tratt. Arch., 1. No. 1.; Wat. Dend. Brit., t. 160.; our *fig.* 114. in p. 434.; and the plate of this species in our Second Volume.

Spec. Char. Leaves cordate, undivided, serrated, with obsolete lobes. Racemes compound, crowded, erect; wings of fruit parallel, young ones puberulous. (*Don's Mill.*, i. p. 648.) A low tree, native of Tartary, introduced in 1759; flowering in May and June, and growing to the height of from 20 ft. to 30 ft.

Description, &c. The branches are numerous, and disposed into a compact head, densely covered with leaves, which are distinguished by a peculiarly veiny appearance, and lively green. The flowers are of a pale greenish yellow, sometimes slightly tinged with red, as are the fruit, or keys, before their maturity. When raised from seed, the plant will come into flower in 5 or 6 years; and, in good soil, it will attain the height of 15 ft. in 10 years.

Geography, History, &c. This species is common throughout all the south of European Russia; but it is not found on the Ural Mountains, or on Caucasus. Near the Wolga and its tributary streams, it forms a hemispherical tree, about 20 ft. in height, and the same in diameter. In New Russia, it attains the size of *A'cer* campéstre. (*Pall.*) According to some, this species will thrive in a moister soil than most others. The wood is hard; and, being of whitish colour veined with brown, it may be used for cabinet-work. In ornamental plantations, this species is valuable on account of the early expansion of its leaves, which appear before those of almost every other kind of *A'cer*. Pallas informs us, that the Calmucks, after depriving the keys of their wings, boil them in water, and afterwards use them for food, mixed up with milk and butter. In Britain, it is planted solely as an ornamental tree or bush.

Statistics. The largest specimen of it in the neighbourhood of London is at Syon, where it has attained the height of 25 ft. In Devonshire, at Endsleigh Cottage, 18 years planted, it is 40 ft. high. In Sussex, at West Dean, 15 years planted, it is 19 ft. high. In Staffordshire, at Trentham, 16 ft. high, with a head 20 ft. in diameter. In Worcestershire, at Croome, 30 years planted, and 30 ft. high. In Scotland, in the Perth Nursery, 14 years planted and 10 ft. high. Price, in London, 1*s.*; and at Bollwyller, 1 franc each.

B. *Leaves 3-lobed, or trifid; rarely 5-lobed.*

‡ 3. *A.* SPICA'TUM *L.* The spiked-*flowered* Maple.

Identification. Lam. Dict., 2. p. 381.; Dec. Prod., 1. p. 593.; Don's Mill., 1. p. 648.
Synonymes. *A.* montànum *Ait. Hort. Kew.*, 3. p. 435.; *A.* pennsylvánicum *Du Roi, Harbk*, t. 2.; *A.* parviflòrum *Ehrh.*; Mountain Maple, E'rable de Montagne, *Fr.*; Berg Ahorn, *Ger.*
Engravings, Trat. Arch., No. 13.; our *fig.* 115. in p. 435.; and the plate of this species in our Second Volume.

Spec. Char., &c. Leaves cordate, 3- or slightly 5-lobed, acuminated, pubescent beneath, unequally and coarsely serrated. Racemes compound, erect. Petals linear. Fruit smooth, with the wings rather diverging. (*Don's*

Mill., i. p. 648.) Flowers polygamous. A deciduous tree, a native of the mountains of Canada, and of the Alleghany Mountains; producing its very small greenish flowers in April and May, and attaining in its native country, according to Michaux, the height of 6 ft. or 8 ft. Introduced in 1750, by Archibald Duke of Argyle, and about as common in ornamental plantations in England as *Aˋ*cer tatáricum. In British gardens, it forms a low tree, 8 ft. or 10 ft. high, very ornamental in autumn, from its small keys, which are fixed upon slender pendulous spikes, and have their membranous wings, beautifully tinged with red when ripe. Michaux states that this species, grafted upon the sycamore, is, like the *Aˋ*cer striàtum, augmented to twice its natural dimensions; a fact which we have never had an opportunity of seeing verified.

Statistics. At Syon, 25 ft. high. In Worcestershire, at Croome, 30 years planted and 40 ft. high, the trunk 15 in. in diameter, and the diameter of the head 20 ft. In Scotland, at Edinburgh, in the Caledonian Horticultural Society's Garden, 9 years planted and 30 ft. high. Price, in London, 1*s.* 6*d.* a plant; at Bollwyller, 1 franc 50 cents; at New York, 25 cents, and seeds 1 dollar per quart.

⚘ 4. *A.* STRIAˋTUM *L.* The striped-*barked* Maple.

Identification. Lam. Dict., 2. p. 381.; Dec. Prod., 1. p. 593.; Don's Mill., 1. p. 648.
Synonymes. *A.* pennsylvánicum *Lin. Sp.*, 1496.; *A.* canadénse *Marsh.*, and *Duh. Arb.*, 1. t. 12.; Snake-barked Maple, Moose Wood, striped Maple; E'rable jaspé, *Fr.*; gestreifter Ahorn, *Ger.*
Engravings. Mill. t. 7.; Trat. Arch., No. 11.; Mich. Fel. Arb., 2. t. 17.; our *fig.* 116. in p. 436, 437.; and the plate of this species in our Second Volume.

Spec. Char. Leaves cordate, 3-lobed, acuminated, finely and acutely, serrated. Racemes pendulous, simple. Petals oval. Fruit smooth, with the wings rather diverging. (*Don's Mill.*, i. p. 643.) A tree readily distinguished by the striped bark of the young shoots, growing in its native country to the height of 10 ft. or 12 ft., but to that of 20 ft. or upwards in a state of cultivation. It produces its flowers in May and June, and sometimes ripens seeds.

Description, &c. The trunk and branches are covered with a smooth green bark, longitudinally marked with black and white stripes, by which the tree is readily distinguished at all seasons of the year. In America, it is one of the first trees that announces the approach of spring. Its buds and leaves, when beginning to unfold, are rose-coloured. The leaves are of a thick texture, and finely serrated. The flowers are greenish, and are grouped on long peduncles. The fruit is remarkable for a cavity on one side of the capsules. It is a native of North America, in Nova Scotia, and from Canada to Carolina. It makes its first appearance in about latitude 47°, and is particularly abundant in Nova Scotia, the State of Maine, and New Hampshire. In approaching the Hudson, it becomes more rare; and, beyond this boundary, it is confined to the mountainous tracts of the Alleghanies, in which it is found in cold shaded exposures, along the whole range to its termination in Georgia. In many of the forests of Maine and New Hampshire, *A.* striàtum constitutes a great part of the undergrowth, seldom exceeding 10 ft. in height; but, where it is not shaded by other trees, it attains the height of 20 ft. or upwards. The wood is white and fine-grained, and used by cabinet-makers as a substitute for holly. Cattle, in Nova Scotia, are fed with the leaves, both in a green and dried state; and in spring, when the buds begin to swell, both horses and cattle are turned into the woods to browse on the young shoots, which they consume with avidity. (*Michaux.*) From the great beauty of its bark, this tree deserves a place in every collection. It is propagated by seeds, which are received from America, or by grafting on *A.* Pseùdo-*Plátanus*.

Statistics. The largest specimen which we know of within a short distance of London, is at Mr. Needham's villa, near Maidenhead, where it has attained the height of 16 ft. 6 in. in 20 years. Near Reading, at White Knights, a tree 25 years planted is 21 ft. high; in Surrey, at Farnham Castle, 35 years planted, it is 16 ft. high; in Yorkshire, at Ripley Castle, 11 years planted, it is 15 ft. high. In Scotland, in the garden of the Caledonian Horticultural Society, 9 years planted, it is 8 ft. high. In Ireland, at Oriel Temple, 35 years planted, it is 27 ft. high. Price of plants, in the London Nurseries, 1*s.* 6*d.* each; at Bollwyller, 1 franc 50 cents; and at New York, 25 cents a plant, and 1 dollar and 50 cents for a quart of seed.

C. *Leaves 5-lobed.*

⚘ 5. *A.* MACROPHY´LLUM *Pursh.* The long, *or large*, leaved Maple.

Identification. Pursh, Fl. Amer. Sept., 1. p. 267.; Dec. Prod., 1. p. 594.; Don's Mill., 1 p. 649.
Engravings. Hook. Fl. Bor. Amer., 1. t 38.; our *figs.* 117. in p. 438, 439., and 118. in p. 440, 441.; and the plate of this species in our Second Volume.

Spec. Char., &c. Leaves digitately 5-lobed, with roundish recesses. Lobes somewhat 3-lobed, repandly toothed, pubescent beneath, racemes compound, erect. Stamens 9, with hairy filaments. Ovaries very hairy. (*Don's Mill.*, i. p. 648.) The leaves vary much in size, and also in the manner in which they are lobed. Those of the dried specimens sent home by Mr. Douglas, are cut nearly to the base, so as almost to merit the appellation of palmate, while those of young plants in the London Horticultural Society's Garden, and at Messrs. Loddiges's, are not more deeply cut than those of *A.* platanöides, as may be seen by our *figs.* in p. 440, 441., taken from leaves gathered in these gardens.

Description, &c. A tree of the largest size, a native of the north-west coast of North America, and introduced into England in 1812; where, however, it has not yet flowered. In its native country it is found exclusively in woody mountainous regions along the sea coast, between 40° and 50° N. lat., and on the great rapids of the Columbia. This noble tree, Dr. Hooker observes, was unquestionably discovered by Mr. Menzies, the first naturalist who visited the coast where it grows. Mr. Douglas, who subsequently found it, and sent dried specimens and seeds to the London Horticultural Society, observes, "It is one of the most graceful of trees in the country it inhabits, varying from 40 ft. to 90 ft in height, and from 6 ft to 16 ft. in the circumference of its trunk. The branches are widely spreading, the bark rough and brown, the wood soft, but beautifully veined. It contains, perhaps, as much sap as any species, except *A.* sacchárinum; but the sap is not used for making sugar by the natives. The flowers are yellow, and very fragrant, appearing in April and May. Mr. Douglas prophetically adds, "It will, at some future time, constitute one of our most ornamental forest trees in England." (*Hooker's Fl. Bor. Amer.*, vol. i. p. 112.) Specimens of the timber, which were sent home by Mr. Douglas, exhibit a grain scarcely inferior in beauty to the finest satin wood. The largest specimen of the tree is in the garden of the London Horticultural Society; where, in 1835, it had attained the height of 25 ft. It is propagated by layers in the garden of the Society; and at Messrs Loddiges's, and the annual shoots from them are often from 6 ft. to 10 ft. in length; so that there can be no doubt of the tree being one of very rapid growth. This magnificent species cannot be too warmly recommended to the attention of planters, as it is perfectly hardy, and well suited for general cultivation, both in useful and ornamental plantations, throughout Europe. Plants, in London, cost 2*s.* 6*d.* each; and when the tree has once ripened seeds in Britain, plants will be much cheaper.

⚘ 6. *A.* PLATANÖI`DES *L.* The Platanus-like, *or Norway*, Maple.

Identification. Lin. Sp., 1496.; Dec. Prod., i. p. 649; Don's Mill., 1. p. 649.
Synonymes. E'rable plane, or E'rable de Norvége, *Fr.*; spitz Ahorn, or spitz-blättriger Ahorn, *Ger.*
Engravings. Duh. Arb., 1. t. 10. f. 1.; Tratt. Arch., 1. t. 4.; Mill. Ic., t. 8. f. 1.; and our *fig.* 119. in p. 442, 443.

Spec. Char., &c. Leaves cordate, smooth, 5-lobed. Lobes acuminated, with a few coarse acute teeth. Corymbs stalked, erectish, and, as well as the fruit, smooth; fruit with divaricated wings. (*Don's Mill.*, i. p. 649.) A middle-sized deciduous tree, a native of Europe, from Norway to Switzerland, and also of North America, but not of Britain, flowering in May and June. Introduced in 1683. Height from 40 ft. to 70 ft.

Description. A handsome tree of the first rank; in general appearance, at a distance, like the common sycamore; but, on a nearer approach, the leaves are found of a smoother and finer texture. The roots extend considerably both downwards and laterally. The trunk is somewhat shorter than that of the sycamore, seldom exceeding 60 ft. or 70 ft. in height. The bark is green on the young shoots, but it afterwards becomes of a reddish brown, dotted with white points: that of the trunk is brown, and rather cracked. The buds are large and red in autumn, becoming of a still darker red in the course of the winter: those on the points of the shoots are always the largest. The leaves are thin, green on both sides, and shining. When the petiole is broken an acrid milky sap issues from it, which coagulates with the air. The leaves are about 5 in. long, and nearly the same in width. The petioles are longer than the leaves. About the end of October, the leaves become either of a clear or a yellowish red, and then drop off. The flowers appear just before the leaves, near the end of April: they form a short raceme, somewhat corymbose. The fruits, or keys, have their wings yellow. They ripen in September and October; and it is not till the tree has attained the age of nearly 40 years that it produces fertile seeds, though it will flower many years before that period. The rate of growth of this species is considerable. In France, a plant has been known to attain the height of 12 ft. in three years from the seed. In England, when once established, it produces shoots from 18 in. to 3 ft. long every year, till it attains the height of 20 ft. or 30 ft.; which, in favourable situations, it does in 10 years.

Varieties.

¥ A. p. 2 *Lobèlii. Lobel's Platanus-like Maple.*

Synonymes. A. Lobèl*ii* Tenore; *A.* platanöides *Don's Mill.*, 1. p. 649.
Engraving. Our *fig.* 120. in p. 444.

Description. The leaves are very slightly heart-shaped, irregularly toothed, 5-lobed, with the lobes more or less abruptly pointed. The bark of the young wood striped, somewhat in the manner of that of *A.* striàtum; by which circumstance the plant, in a young state, is readily distinguished from *A. p*latanöides. A large tree, native of the kingdom of Naples, and found on mountains. The general appearance is said to be that of *A. p*latanöides, of which it seems to us to be only a variety. We have seen small plants of this sort in the arboretum of Messrs. Loddiges, and in one or two of the nurseries. These were imported from Messrs. Booth, nurserymen, Hamburg. They appear to be grafted on *A. p*latanöides.

¥ A. p. 3 *pubéscens* Hayne. *The downy*-leaved *Platanus-like Maple.* — Leaves downy on the under side. This variety appears to be found in Germany; but we have not seen it in England.

¥ A. p. 4 *variegàtum* Hort., *álbo variegàtum* Hayne. *The silvery variegated*-leaved *Platanus-like Maple.*—According to the figure in Schmidt's *Baumzucht*, the foliage of this variety is beautifully marked, and very handsome; but we have never seen it in Britain in a state to warrant us in recommending it for cultivation. From several specimens which we have seen, we consider it as decidedly inferior in beauty to the variegated sycamore.

¥ A. p. 5 *aúreo variegàtum, the golden variegated*-leaved *Platanus-like Maple*, is described in books, but we have never seen a plant of it.

¥ A. p. 6 *laciniàtum* Dec. *The cut*-leaved *Platanus-like Maple.* (*fig* 121. in p. 445.)—A very distinct variety, with the leaves deeply and variously cut. It is frequently produced from seed, being found by nurserymen among seedlings of the species. In 1835, there were above 100 of them, in two beds of one year's seedlings, in the Goldworth Nursery. A. p. *críspum* Lanth seems to be nothing more than a synonyme of this variety; which, in the nurseries, is sometimes called the eagle's claw, or hawk's foot, maple.

Geography. A native of Europe, from the west coast of Norway to Switzerland, and from France to the eastern boundary of European Russia. Pallas says, it does not occur beyond the Ural Mountains, or in Siberia, but that it is common through all the woods of Russia. We observed it in 1814, in all the woods bordering the public road from Wilna to Mittau, and from Moscow to Galicia. Next to the birch and the trembling poplar, it seemed to us the most abundant tree in the Russian woods. In the north, according to Pallas, it forms a stunted bush; but in the Ukraine it is a lofty tree.

History. This species is recorded as having been first cultivated in Britain in the Edinburgh Botanic Garden, by Mr. James Sutherland. It has since been very generally propagated in Britain, and is now to be found in most ornamental plantations made since the days of Miller. The largest trees in the neighbourhood of London are at Purser's Cross and Syon, where they have attained the height of nearly 60 ft.

Properties and Uses. The wood, in its young state, is white; but at a more advanced age it becomes grey. In a dry state, it weighs 43 lb. 4 oz. per cubic foot. It is easily worked, takes a fine polish, and absorbs and retains all kinds of colours. By drying it only loses a 24th part of its weight. It is used for all the various purposes of the wood of the common sycamore. From the sap, sugar has been made in Norway, Sweden, and in Lithuania. The German foresters have found that this sap is produced in less abundance than that of the sugar maple, or of the common sycamore; but that it contains more saccharine matter than the sap of the latter species. Some chemists have found that, after boring a hole at the base of the trunk, 35 quarts of sap have been produced in 8 days; and that 95 lb. of this sap have, by evaporation, given 4 lb. of syrup; and that from 80 lb. to 100 lb. of this syrup have given from 4 lb. to 6 lb. of crystallised sugar. After a great quantity of this sap has been drawn off, it begins to get thicker, muddy, and yellow in appearance, bitter in taste, and not productive of syrup.

Soil and Situation. To attain a considerable size, the tree ought to be planted in a free, deep, rich soil, not surcharged with moisture; and the situation ought to be low rather than high. It thrives remarkably well on the sea shore on the Baltic, and along the west coast of Norway, and the west coast of Scotland.

Propagation and Culture. After the tree has attained a considerable size and age, it produces abundance of fertile seeds in England. It does so at Purser's Cross, at Syon, and various other places. The varieties are propagated by grafting or layering. The seeds, as soon as they are gathered, should be either immediately sown, or mixed with sand or earth, and kept moderately dry till spring. In either case they come up the first year.

Accidents and Diseases. The leaves of this species, in common with those of *A.* Pseùdo-*Plá*tanus, and perhaps most of the other species of *A*ˋcer, are subject to what is commonly called the honey dew, which, from its clamminess in the neighbourhood of the smoke of mineral coal, is apt to attract and retain the particles of soot which are continually floating in the air. In consequence of insects resorting to these leaves, they are frequently blackened with their excrements. In some parts of France this honey dew is called manna. M. Tschoudi says that the manna is produced by the extravasated sap; and that the bees are so fond of it, that it would be worth while to plant the tree in the neighbourhood of places where hives are kept. According to others, the bitterness of the matter of the leaves prevents them from being attacked by insects.

Statistics. In the neighbourhood of London, the largest tree of *A. p*latanöides is at Kew, where, in 70 years, it has attained the height of 76 ft.; at Syon, it has attained the height of 64 ft., with a trunk 2⅓ ft. in diameter, and the diameter of the head 64 ft.; at Kenwood there is a tree, 35 years planted, 47 ft. high. In Surrey, at Bagshot Park, a tree, 14 years planted, has attained the height of 25 ft., with a trunk 16 in. in diameter. In Sussex, at West Dean, a tree of the cut-leaved variety, 9 years planted, has attained the height of 26 ft. In Lancashire, at Latham House, a tree, 40 years planted, is 45 ft. high. In Staffordshire, at Teddesley, a tree, 14 years planted, is 28 ft. high. In

Worcestershire, at Croome, a tree, 35 years planted, is 40 ft. high. In Yorkshire, at Grimstone, a tree, 13 years planted, is 30 ft. high. In Scotland, in Haddingtonshire, at Tynningham, there is a tree 42 ft. high. In Clackmannanshire, in the garden of the Dollar Institution, one 7 years planted is 14 ft. high. In Perthshire, at Taymouth, one 50 years planted is 50 ft. high; the diameter of the head 51 feet. According to Dr. Walker, this tree has attained a large size in the Island of Bute, at Bargally, and at various other places on the sea coast of Scotland. In Ireland, in King's county, at Charleville Forest, a tree, 60 years planted, is 78 ft. high, with a trunk 3 ft. 8 in. at 1 ft. from the ground, In France, in the neighbourhood of Paris, the tree attains the height of 60 ft. In Germany, in Hanover, at Schwöbber, it has attained the height of 80 ft. In Saxony, at Wörlitz, 40 ft. In the neighbourhood of Vienna, from 50 ft. to 60 ft. In Russia, where the tree is very common, it often exceeds the height of 40 ft., south of Kiow; but north of Moscow it is seldom above 30 ft. In Sweden, on the north-west coast, exposed to the sea breeze, it grows to the height of between 30 ft. and 40 ft.; as it does about Lund, and at different places on both shores of the Baltic.

Commercial Statistics. This tree is very generally propagated in European nurseries. In London, plants, 1 ft. high, cost 30*s.* a 1000; and 3 ft. high, 50*s.*; at Bollwyller, 20 cents each, or 40 francs a 1000; at New York, ?.

‡ 7. *A.* SACCHA'RINUM *L.* The Sugar Maple.

Identification. Lin. Sp., 1496.; Hayne, Dend., p. 214.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 650.
Synonymes. Rock Maple, Hard Maple, Bird's-eye Maple, *Amer.*
Engravings. Michx. Fl. Arb., 2. t. 15.; Tratt. Arch., 1. No. 3.; our *fig.* 122. in p. 446, 447.; and the plate of this species in our Second Volume.

Variety. A. *s.* 2 *nigrum;* the *A.* nigrum of *Michaux, De Candolle,* and *G. Don*; the black Sugar Tree, or Rock Maple, figured in *Michx. Arb.*, 2. t. 16. has the leaves resembling those of *A*'cer sacchárinum, but much darker. According to Michaux, the leaves are 5 in. or 6 in. long, and "exhibit, in every respect, nearly the same conformation as those of the true sugar maple. "They differ from it," he says, "chiefly in being of a darker green, and of a thicker texture; and in being somewhat more bluntly lobed. The tree is indiscriminately mixed with the common sugar maple through extensive ranges of country in New Hampshire, Vermont, and Connecticut; but is readily distinguished from it by the smaller size which it attains, and the darker colour of its leaves." The soil in which it flourishes best is a rich, strong, sandy loam; and there it usually grows to the height of 40 ft. or 50 ft. Trees of this alleged species were introduced into England in 1812; and there are plants bearing the name in the garden of the London Horticultural Society, and in the garden of the Messrs. Loddiges, and to us they have always appeared to be merely varieties of *A.* sacchárinum, differing in nothing but in having the foliage somewhat darker. Plants, in the London nurseries, cost 1*s.* 6*d.*, and seeds 4*s.* per ounce; at Bollwyller, 1 franc 50 cents a plant; and at New York, 50 cents a plant, and seeds 1 dollar per quart.

Spec. Char., &c. Leaves cordate, smooth, glaucous beneath, palmately 5-lobed; lobes acuminated, serrately toothed. Corymbs drooping, on short peduncles. Pedicels pilose. Fruit smooth with the wings diverging. (*Don's Mill.*, i. p. 650.) A deciduous tree, from North America, growing, in England, to the height of 40 ft. or 50 ft., and flowering in April and May. Introduced in 1735.

Description. In America, the sugar maple sometimes reaches the height of 70 ft. or 80 ft., with a proportionate diameter; but it does not commonly exceed 50 ft. or 60 ft., with a diameter of 12 in. or 18 in. Well-grown thriving trees are beautiful in their appearance, and easily distinguished by the whiteness of their bark. The leaves are about 5 in. broad; but they vary in length according to the age and vigour of the tree. They are opposite, attached by long petioles, palmated or unequally divided into 5 lobes, entire at the edges, of a bright green above, and glaucous or whitish underneath. In autumn, they turn reddish with the first frosts. Except in the colour of the under surface, they nearly resemble the leaves of the Norway maple. The flowers are small, yellowish, and suspended by slender drooping peduncles. The seed is contained in two capsules united at the base, and terminating in a membranous wing. It is ripe near New York in the beginning of October, though the capsules attain their full size six weeks earlier. Externally, they appear equally perfect; but Michaux informs us that he constantly found one of them empty; and the fruit is matured only once in two or three years. (*Michaux*, p. 225.) The wood, when cut, is white; but, after being wrought and exposed some time to the light, it takes a rosy tinge. Its grain is fine and close, and, when polished, it has a silky lustre. It is very strong, and sufficiently heavy, but wants the property of durability, for which the chestnut and the oak are so highly esteemed. When exposed to moisture it soon decays; and for this reason it is neglected in civil and naval architecture. (*Michaux*, p. 225, 226.) The buds of this species, like those of *A*'cer Pseùdo-*P*látanus, of which it may be considered the American representative, have a fine ruddy tint early in spring, before they begin to expand.

Geography. According to the elder Michaux's researches, the sugar maple begins a little north of Lake St. John, in Canada, near 48° of N. lat. which, in the rigour of its winter, corresponds to 68° of Europe. It is nowhere more abundant than between 46° and 43° of N. lat.; which space comprises Canada, New Brunswick, Nova Scotia, the states of Vermont and New Hampshire, and the district of Maine: in these regions, it enters largely into the composition of the forests, with which they are still covered. Farther south, it is common only in Genessee in the state of New York, and in the upper parts of Pennsylvania. It is estimated by Dr. Rush, that, in the northern parts of these two states, there are 10,000,000 of acres which produce these trees in the proportion of thirty to an acre. In the lower parts of Virginia, of the Carolinas, and of Georgia, and likewise in the Mississippi territory, this tree is unknown, or very rare. It is rapidly disappearing from the forests about New York and Philadelphia, where it is no longer tapped for sugar, but is felled for fuel and for other purposes.

The sugar maple covers a greater extent of the American soil than any other species of this genus. It flourishes most in mountainous places, where the soil, though fertile, is cold and humid. Besides the parts already mentioned, it is found along the whole chain of the Alleghanies to its termination in Georgia, and on the steep and shady banks of the rivers which rise in these mountains. (*Michaux*, 225.)

Properties and Uses. In America, in Vermont, New Hampshire, the district of Maine, and farther north, where the oak is not plentiful, the timber of the sugar maple is substituted for it, in preference to that of the beech, the birch, or the elm. When perfectly seasoned, which requires two or three years, it is used by wheelwrights for axle trees and spokes, and for similar purposes. It is also employed, as well as the red-flowered maple, in the manufacture of Windsor chairs. In the country, where the houses are wholly of wood, sugar maple timber is used for the framework; and in the district of Maine it is preferred to the beech for the keels of vessels, as it furnishes longer pieces: with the beech and the yellow pine it forms, also, the lower frame of vessels, which is always in the water. The wood exhibits two accidental forms in the arrangement of the fibre, of which cabinet-makers take advantage for making beautiful articles of furniture. The first consists in undulations like those of the curled maple (*A.* rùbrum, see p. 426.) the second, which takes place only in old trees that are still sound, and which appears to arise from an inflexion of the fibre from the circumference towards the centre, produces spots of half a line in diameter, sometimes contiguous, and sometimes several lines apart. The more numerous the spots, the more beautiful and the more esteemed is the wood. This variety is called bird's-eye maple. Like the curled maple, it is used for inlaying mahogany. Bedsteads are made of it, and portable writing-desks, which are elegant and highly prized. To obtain the finest effect, the log should be sawn in a direction as nearly as possible parallel to the concentrical circles. When cut at the proper season, the sugar maple forms excellent fuel. It is exported from the district of Maine, for the consumption of Boston, and is equally esteemed for that purpose with the hickory.

The ashes of the sugar maple are rich in the alkaline principle, and it may be confidently asserted, that they furnish four fifths of the potash exported to Europe from Boston and New York. In the forges of Vermont and the district of the Maine, the charcoal of this wood is preferred to any other, and it is said to be one fifth heavier than that made from the same species in the middle and southern states; a fact which sufficiently evinces that this maple acquires its characteristic properties in perfection only in northern climates.

The wood of the sugar maple is easily distinguished from that of the red-flowered maple, which it resembles in appearance, by its weight and hardness. There is, besides, a very simple and certain test: a few drops of sulphate of iron being poured on samples of the different species, the sugar maple turns greenish, and the white maple and the red-flowered maple change to a deep blue.

The extraction of sugar from the maple is a valuable resource in a new country abounding in forests of that tree, and without much foreign commerce; but it is evident that this mode of obtaining sugar is only destined for a certain stage in the progress of society, and must, in America, very shortly give way to the sugar of commerce, produced by the cane; for this reason, we shall give but a short account of the process of manufacturing maple sugar, and this chiefly as a matter of historical interest, rather than of practical utility. In America, wherever there are canals and railroads, the making of maple sugar must soon become an unprofitable occupation.

The process of making maple sugar is commonly begun in February, or in the beginning of March, while the cold continues intense, and the ground is still covered with snow. The sap begins to be in motion at this season, two months before the general revival of vegetation. In a central situation, lying convenient to the trees from which the sap is to be drawn, a shed is constructed, called a sugar camp, which is destined to shelter the boilers, and the persons who tend them, from the weather. An auger ¾ of an inch in diameter; small troughs to receive the sap; tubes of elder or sumach, 8 in. or 10 in. long, corresponding in size to the auger, and laid open for a part of their length; buckets for emptying the troughs and conveying the sap to the camp; boilers of 15 or 18 gallons' capacity; moulds to receive the syrup when reduced to a proper consistency for being formed into cakes; and, lastly, axes to cut and split the fuel, are the principal utensils employed in the operation. The trees are perforated in an obliquely ascending direction, 18 in. or 20 in. from the ground, with two holes 4 in. or 5 in. apart. Care should be taken that the augers do not enter more than half an inch within the wood, as experience has shown that the most abundant flow of sap takes place at this depth. It is also recommended to insert the tubes on the south side of the tree. The troughs, which contain 2 or 3 gallons, are made, in the northern states, of the white pine, of white or black oak, or of maple; but on the Ohio, the mulberry, which is very abundant, is preferred. The chestnut, the black walnut, and the butternut should be rejected, as they impart to the liquid the colouring matter and bitter principle with which they are impregnated. A trough is placed on the ground, at the foot of each tree; and the sap is every day collected and temporarily poured into casks, from which it is drawn out to fill the boilers. The evaporation is kept up by a brisk fire; and the scum is carefully taken off during this part of the process. Fresh sap is added from time to time; and the heat is maintained till the liquid is reduced to a syrup; after which it is left to cool, and then strained through a blanket or other woollen stuff, to separate it from the remaining impurities, when it is poured into the moulds. The boilers are only half filled; and a steady heat is kept up till the liquor is reduced to the proper consistency for being poured into the moulds. The evaporation is known to have proceeded far enough, when, upon rubbing a drop of the syrup between the fingers, it is perceived to be granular. If it is in danger of boiling over, a bit of lard or of butter is thrown into it, which instantly calms the ebullition. When refined, this sugar equals in beauty the finest consumed in Europe; but it is used only in the districts where it is made, and there only in the country places, as, from prejudice or taste, Michaux observes, imported sugar is used in all the small towns, and in the inns.

The sap continues to flow for six weeks; after which it become less abundant, less rich in saccharine matter, and sometimes even incapable of crystallisation. In this case it is consumed in the state of molasses, or exposed for three or four days to the sun; when it is converted into vinegar by the acetous fermentation: a kind of beer is also made of it. The amount of sugar produced by each tree in a year varies from different causes. A cold and dry winter renders the trees more productive than a changeable and humid season. It is observed, that, when a frosty night is followed by a dry and brilliant day, the sap flows abundantly; and two or three gallons of sap are sometimes yielded by a single tree in twenty-four hours. The yearly product varies from 2 lb. to 4 lb. of sugar each tree. Trees which grow in low and moist places afford a greater quantity of sap than those which occupy rising grounds; but it is less rich in the saccharine principle. That of insulated trees, left standing in the middle of fields, or by the side of fences, is the best. It is also remarked, that, in districts which have been cleared of other trees, and even of the less vigorous sugar maples, the product of the remainder is proportionably greater.

Wild and domestic animals are inordinately fond of maple juice, and break through their enclosures to sate themselves with it. (*Michaux*, p. 236.) In Europe, it is not likely that the extraction of sugar from any species of maple will ever be tried otherwise than as a matter of curiosity. Count Wingersky is said to have planted a great many trees of *A.* sacchárinum on his estates in Moravia, and to have drawn off the sap from them at the age of 25 years, in order to make sugar. He succeeded in procuring a very good sugar; but, in consequence of drawing sap from the trees every year, they became sickly, and soon afterwards died.

Soil and Situation, Propagation, &c. The same soil may be recommended as for *A. p*latanöídes; but, as the species is considerably more tender, it requires a more sheltered situation. In British nurseries, it is always raised from American seeds.

Statistics. The largest tree in the neighbourhood of London is at Purser's Cross, where it has attained the height of 45 ft. In Berkshire, at High Clere, 6 years planted, it is 24 ft. high; at White Knights, 25 years planted, 21 ft. high; in Herefordshire, at Eastnor Castle, 14 years planted, 30 ft. high; in Cumberland, at Ponsonby Hall, 20 years planted, and 24 ft. high; in Cheshire, at Kinmel Park, 20 years planted, and 24 ft. high; in Staffordshire, at Trentham, 26 years planted, and 35 ft. high; in Yorkshire, at Cannon Hall, 42 ft. high; in Hertfordshire, at Cheshunt, 6 years planted, and 18 ft. high; in Edinburghshire, at Dalhousie Castle, 7 years planted, and 9 ft. high; in Bamffshire, at Gordon Castle, 33 ft. high. In France, in the Botanic Garden at Toulon, 36 ft. high. In Saxony, at Wörlitz, 60 years planted, and 50 ft. high. In Austria, at Kopenzel, near Vienna, 6 years planted, and 14 ft high. In Bavaria, in the Botanic Garden at Munich, 20 years planted, and 8 ft. high. In Cassel, at Wilhelmshoe, 24 years planted, and 30 ft. high. Some of the largest sugar maples in America, according to Mr. Douglas, are on Goat Island, at the Falls of Niagara.

Commercial Statistics. In the London nurseries, plants cost 2*s*. each, and seeds 2*s*. per ounce; at Bollwyller, plants are 1 franc 50 cents each; and at New York, 15 cents a plant, and seeds 2 dollars 25 cents per pound.

‡ 8. *A.* PSEU'DO-*PLA'*TANUS *L.* The Mock Plane Tree, *the Sycamore, or Great Maple.*

Identification. Lin. Sp., 1469.; Don's Mill., 1. p. 648.
Synonymes. Plane Tree, *Scotch*; E'rable Sycamore, E'rable blanc de Montagne, fausse Platane, or grand E'rable, *Fr.*; Ehrenbaum, weisser Ahorn, gor emeine Ahorn, *Ger.*
Engravings. Duh. Arb., 1. t. 36.; Tratt. Arch., 1. No. 2.; Willd. Ab., t. 213.; Krause, t. 121.; our *fig.* 123. in p. 448, 449.; and the plate of this species in our Second Volume.

Spec. Char. &c. Leaves cordate, smooth, with 5 acuminated, unequally toothed lobes. Racemes pendulous, rather compound, with the rachis, as well as the filaments of stamens, hairy. Fruit smooth, with the wings rather diverging. (*Don's Mill.*, i. p. 648.) A deciduous tree, native of Europe, flowering in May and June. Height from 30 ft. to 60 ft. Sexes mostly hermaphrodite.

Varieties.

‡ A. *P.* 2 *fláva variegáta. The yellow variegated Sycamore,* or Costorphine Plane with leaves variegated with yellow. — The original tree stands near an old pigeon-house in the grounds of Sir Thomas Dick Lauder, Bart., in the parish of Costorphine, near Edinburgh. Seeds of this variety, sown, have produced plants with green leaves; but in some of the plants the footstalks of the leaves were of a yellowish green colour, and this colour was partaken of by the leaf: in the other plants the petioles were strongly tinged with red, and the leaves were of a darker green than those of the first-mentioned plants.

‡ A. *P.* 3 *álbo variegáta* Hayne. *The white variegated*-leaved *Sycamore.*—

Leaves blotched with white. This variety is much more common than the other. Tschoudi says of it, that it is one of the finest trees that can be seen; and that, in the beginning of summer, it is delightful to stand under it, and look through the leaves to the sun. At a short distance, he adds, the leaves are as beautiful as flowers. In Britain, however, like the leaves of most other variegated deciduous trees, they soon become ragged, and lose, in autumn, by dying off of a dirty colour and diseased appearance, what they have gained by their whiteness and transparency in spring. Of all the variegated varieties of *A*`cer, however, it must be acknowledged that this variety is to be considered the most ornamental.

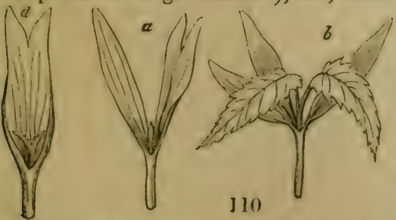
Ŧ A. *P.* 4 *purpùrea* Hort. *The purple*-leaved *Sycamore.*—The leaves are of a fine purple underneath. This variety was originated in Saunders's Nursery, Jersey, about 1828, and is now to be met with in all the principal nurseries. The tree has a very fine appearance when the leaves are slightly ruffled by the wind, alternately appearing clothed in purple and in pale green. In spring, when the leaves first expand, the purple bloom is not obvious; but when they become matured it is very distinct.

Ŧ A. *P.* 5 *subobtùsa* Dec. Prod., i. p. 594. *The half-obtuse*-leaved *Sycamore.* — Lobes of leaves blunter; fruit and wings larger. *A.* opulifòlium *Thuil. Fl. Par.*, 538. *A.* vitifòlium *Opiz.*

Ŧ A. *P.* 6 *laciniàta* Loud. Hort. Brit., p. 412. *The cut*-leaved *Sycamore.* —Lobes of leaves jagged. (*Schm. Arb.*, i. 5.; *Don's Mill.*, i. p. 648.)

Other Varieties. In the garden of the London Horticultural Society there is a variety called *Hodgkins's Seedling*, with yellow blotched leaves; and another, called *Leslie's Seedling.* In Hayne's *Dendrologische Flora* there are, also, the following varieties: A. *P. stenóptera*, A. *P. macróptera*, and A. *P. micróptera*, which differ in the proportions of the wings of the keys, and do not appear worth farther notice.

Description. A large handsome tree, of quick growth, with a smooth ash-coloured bark, and round spreading branches. Leaves on long footstalks, 4 in. or 5 in. broad, palmate, with 5 acute, variously serrated lobes; the middle one largest, pale or glaucous beneath. Flowers green, the size of a currant blossom, disposed into axillary, pendulous, compound clusters. Capsules 2 or 3, with broad spreading wings. (*Smith's Eng. Flora*, ii. p. 230., with adaptation.) The fruits of this species are botanically interesting, from the readiness with which the funiculus may be traced in its passage through the base of the samara to its union with the seed; and from the neat and copious lining of soft and glossy down, with which the interior of the cell of the samara is coated, as if for a commodious lodging for the seed, till wind shall have acted on the wing of the samara, and disseminated it, and the moisture of the earth whereon it falls shall have excited the seed it contains to germinate. In this species, the cotyledons are circinately folded, and incumbent on the radicle. The cotyledons, but, perhaps, after germination, and the primordial leaves (those first produced on germination), are, when chewed, bitter. Professor Henslow has found, by "a careful search among the numerous young plants of this tree which every where spring up in its neighbourhood, many in which the cotyledons were either three or four. In some instances, where there were only two, as usual, one of them was more or less cloven down the middle (*fig.* 110. *a*); and these served to illustrate, in a marked manner, the way in which others had become possessed of more than their ordinary number. For, in these cases, either two of the cotyledons were not, at first, so large as the third, when there were three



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only (*b*); or else, when four were present, they were all proportionally smaller than in those plants which bore two (*fig.* 111. *c*). This shows that the multiplication of the cotyledons, in some plants, may be the result merely of a subdivision in the two which belong to them in their normal condition, and that it may not have originated in any supernumerary developement of these organs themselves. Their comparative inequality, however, soon ceases as the plant developes itself. In one instance, I have remarked a cohesion taking place between the two cotyledons nearly throughout their whole length (*fig.* 110. *d*); and then the young plant had strangely assumed the form of a monocotyledon. Sometimes the superfluous division was continued to the primordial leaves, of which there were one large, and two that were smaller (*fig.* 111. *e*): but I have never observed the anomaly extend beyond them; the next in succession, and all after them, being developed in pairs, in the usual way. The above figures are selected from among several varieties which I possess of this anomalous germination of the sycamore." (*Mag. Nat. Hist.*, vol. v. p. 346, 347.) The growth of the sycamore is very rapid compared with that of other trees, particularly when it is in a deep, free, rich soil, and in a mild climate. It arrives at its full growth in 50 or 60 years; but it requires to be 80 or 100 years old before its wood arrives at perfection. In marshy soil, or in dry sand, and even on chalk, the tree never attains any size. It produces fertile seeds at the age of 20 years, but flowers several years sooner; sometimes even perfecting its seeds sooner also. The longevity of the tree is from 140 to 200 years, though it has been known of a much greater age. M. Hartig has felled sycamore trees 200 years old, and upwards of 100 ft. in height, the timber of which was perfectly sound.

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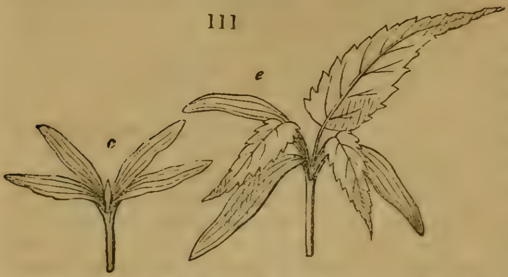

Geography. Found in various parts of Europe, particularly in Switzerland, Germany, Austria, and Italy, in wooded mountainous situations. In England, it is found in hedges and about houses, but not truly wild, according to Smith; though others consider it indigenous. Gerard, in 1597, says it is a stranger in England, only found growing in the walks and places of pleasure of noblemen, where it is planted for the sake of its shadow. Parkinson observes, " It is cherished in our land only in orchards or elsewhere, for shade and walks." Ray speaks of it as very common in courtyards, churchyards, avenues, and about noblemen's houses; but says it began, in his time, not to be much in request, because of the great litter occasioned in gardens and walks by the falling leaves. Martyn, in his edition of *Miller's Dictionary*, says that, if it were truly indigenous, the country would have been full of it; since the tree comes up with such wonderful facility from the seed. For the same reason, Dr. Walker supposes it to have been one of the very earliest of foreign trees introduced into Scotland. Sir T. D. Lauder says, " It is a favourite Scotch tree, having been much planted about old aristocratic residences in Scotland; and, if the doubt of its being a native of Britain be true, which, however, we cannot believe, then it is probable that the long intimacy which subsisted between France and Scotland may be the cause of its being so prevalent in the latter country." (*Lauder's Gilpin*, i. p. 121.) In Switzerland, the tree is found from 2000 ft. to 3000 ft. above the level of the sea, reaching up the mountains to the point where *V*accínium *V*ítis idæ̀a commences; provided, however, that the soil be dry and of a good quality. In such situations it suffers much less from frost and snow than many other trees.

History. The first record of the tree, as in cultivation in Britain, is in

Turner's *Herbal*, in 1551: it is mentioned by all subsequent British authors as of doubtful indigenousness. From the facility with which it is propagated, the hardiness and vigorous growth of the tree, its various uses, especially, as Dr. Walker observes, for forming domestic utensils, and also the beauty of its buds in spring, and of its foliage in early summer, it has been very generally planted.

Properties and Uses. The wood, when the tree is young, is white; but, as it gets older, the wood becomes a little yellow, and often brown, especially towards the heart. It is compact and firm, without being very hard; of a fine grain, sometimes veined, susceptible of a high polish, and easily worked, either on the bench, or in the turning-lathe. It does not warp, and is not likely to be attacked by worms. It weighs per cubic foot, newly cut, 64 lb.; half dry, 56 lb.; dry, 48 lb. It loses, in drying, about a twelfth part of its bulk.

In France and Germany, it is much sought after by wheelwrights, cabinet-makers, turners, sculptors in wood, manufacturers of musical instruments, and especially of violins, and makers of toys and other small wares. The roots, which are often agreeably veined, and the stools or stumps where the plant has been long treated as a bush, and cut periodically for coppice-wood, is eagerly sought after for curious cabinet-works and for inlaying. The wood is used for pestles, for tables, rollers, spoons, plates, and other household articles; it is also used for gun-stocks, and in every kind of structure, whether under water or in the air. According to M. Hartig, the principal German writer on timber trees and their uses, the wood of the common sycamore is the most valuable of all woods as fuel, both for the quantity of heat which it gives out, and the time that it continues burning: it surpasses the beech, in these respects, in the proportion of 1757 to 1540. Converted into charcoal, it is superior to the beech in the proportion of 1647 to 1600. The leaves, gathered green and dried, form an excellent forage for sheep during the winter. The sap has been drawn from the trees in Germany, and various experiments made with it. At first, it is as clear as water, and sweet; but, after it has run from the tree for some time, and begins to run slowly, it takes a whitish colour, and becomes sweeter and of a thicker consistence; though this thick sap is found to contain less sugar than that which comes off first, and is quite clear. From a tree 18 in. in diameter, from which the sap was allowed to flow for five days, 36 quarts were obtained. The proportion of sugar produced by the sap varies. Sometimes an ounce of sugar from a quart of liquor has been obtained; but, generally, not so much. The variations depend on the age of the tree, the vigour of its growth, the nature of the soil, the temperature of the season, and a number of other circumstances of which little is known. In Scotland, Sir Thomas Dick Lauder informs us, incisions were made in the trunk of a sycamore tree of 45 years' growth, at 5 ft. from the ground, in the beginning of March, 1816. "A colourless and transparent sap flowed freely, so as in two or three hours to fill a bottle capable of containing 1 lb. of water. Three bottles and a half were collected, weighing, in all, 3 lb. 4 oz. The sap was evaporated by the heat of a fire, and gave 214 grains of a product in colour resembling raw sugar, and sweet in taste, with a peculiar flavour. After being kept fifteen months, this sugar was slightly moist on the surface. The quantity of sap employed in the evaporation was 24,960 grains, from which 214 grains of sugar were obtained: therefore, 116 parts of sap yielded one part of sugar. The experiment was made at Cannon Park, in Stirlingshire, on the 7th and 8th of March, 1816. (*Lauder's Gilpin*, i. p. 124.) Dr. Walker states that the sap is made into wine in the Western Highlands of Scotland.

In Britain, the uses to which the *A.* Pseùdo-*Plátanus* is applied are much less various than in France and Germany. The species is a very umbrageous one, from its numerous branches, and numerous and large leaves; and hence it is eligible in all cases where trees are wanted to afford dense shade: it may be on this account that it is sometimes seen bounding the homesteads of a farm, and on the sunny side of the dairy in the farm-yard. It is used in joinery and turnery, and cabinet-making; by musical instrument makers; for ciderpresses; and, sometimes, for gun-stocks. Formerly, when wooden dishes and spoons were more used than they are at present, it was much in demand, especially in Scotland, by the manufacturers of these articles.

As underwood, the sycamore shoots freely from the stool to the age of 80 or 100 years. As a timber tree, it is most advantageously cut down at the age of 80 years, or from that age to 100. In Germany, the tree which is commonly planted along with it, in plantations made with a view to profit, is the beech. As an ornamental tree, it produces the best effect; either singly, in groups of two or three, placed sufficiently near to form a whole, but not so as to touch each other; and in rows or avenues. The varieties with variegated leaves are very ornamental in the beginning of summer; but their leaves are almost always more or less imperfect, especially on the edges, and fall off much sooner in the autumn than those of the species. The leaves of the purple variety are not liable to the same objection as those of the variegated sorts.

In Scotland, children amuse themselves by cutting openings in the bark, and sipping the sap that flows from its wounds (*Mag. Nat. Hist.*); and they also play with the large buds which are found on the points of the shoots, which they call cocks, and the small side-buds, which they call hens. In England, children suck the wings of the growing keys, for the sake of obtaining the sweet exudation that is upon them.

Poetical and historical Allusions. The sycamore, in the language of flowers, signifies curiosity, because it was supposed to be "the tree on which Zaccheus climbed to see Christ pass on his way to Jerusalem, when the people strewed leaves and branches of palm and other trees in his way, exclaiming, 'Hosanna to the Son of David!'" (*Syl. Flor.*, p. 221.) The tree called the sycamore in the Bible, however, was not the *A*'cer Pseùdo-*P*látanus, but the *F*ìcus *S*ycómorus; though the supposition that the first was the sycamore of the Scriptures induced many religious persons, in the fourteenth and fifteenth centuries, to plant it near their houses and in their gardens. Evelyn mentions this practice, and condemns it; as the sycamore, from the frequency of honey-dew on its leaves, is a very unwholesome and unsightly tree. It is mentioned by Chaucer; and Cowper says, —

> ——— "Nor unnoticed pass
> The sycamore, capricious in attire;
> Now green, now tawny; and ere autumn yet
> Has changed the woods, in scarlet honours bright."

Soil and Situation. The common sycamore will grow in any soil not saturated with moisture; but it seems to prefer one that is dry and free, rather than one stiff or moist. It will grow in exposed situations, and especially on the sea coast, and maintain its erect position against the sea breeze better than most other trees. It is in use for this purpose in Scotland, and also for planting round farm-houses and cottages on bleak hills. In such situations, an instance can hardly be found of the head of the tree leaning more to one side than another. Even when the wind blows strongly in one direction for nine months in the year, this tree maintains its perpendicularity and symmetrical form.

Propagation and Culture. This species is invariably propagated by seed; and the variegated-leaved and other varieties by layers, or by budding or grafting. It will also propagate freely by cuttings of the roots. The seeds may either be sown immediately after they are gathered, or they may be kept in sand till the following spring. If the seeds are kept dry, and unmixed with sand or earth till spring, they seldom come up the same year, and sometimes lose their vegetative properties altogether.

Accidents and Diseases. The leaves are attacked by various insects, and the young shoots eaten by goats, hares, cattle, horses, and mules. In a suitable soil, the tree is attacked by few diseases; but at great elevations, on unsuitable soils, and especially on such as are wet, the superabundance of sap produces hæmorrhage, and, according to M. Werneck, dropsy. In both these cases, the roots soon become spongy and rotten, and the plant becomes a prey to lichens and fungi, and finally dies. The cause of the disease being the humidity of the soil, it can only be prevented by planting the tree on soil sufficiently dry, either naturally or by drainage. Two parasitic species of *Fúngus* are found upon the leaves: Xylòma *acérinum* *Pers.*, described and figured in the *Encyclopædia of Plants*, No. 16490., and Eríneum *acérinum* *Pers.*, described and figured in the *Encyclopædia of Plants*, No. 16593. A sweet clammy matter exudes from the foliage, and is fed upon by insects, whose excrements tend to discolour it; which shows, in some seasons, considerable discolouration and want of cleanness and freshness, that may be referred in part to this cause, and may be in part referable to particles of dust and other matter floating in the atmosphere, and falling on the clammy surface of the foliage.

Statistics. There are a great many fine specimens of this tree in different parts of Europe; and, as it is a well-known species, we shall only select a few, as in other cases, partly to show the rate of growth, and partly to show the magnitude attained relatively to time.

A. *Pseùdo-Plátanus in the Environs of London.* At Kew, there is a tree, 100 years planted, and 74 ft. high, the trunk 5½ ft. in diameter, and the diameter of the head 60 ft.; at Mount Grove, Hampstead, *A.* P. álbo variegàta, 69 ft. high, the trunk 2 ft. 10 in. in diameter, and the head 47 ft. in diameter; the soil a sandy loam, and the situation exposed.

A. *Pseùdo-Plátanus South of London.* In Hampshire, in Wilkins's Nursery, Isle of Wight, 10 years planted, and 25 ft. high; at Alresford, 81 years planted, 70 ft. high, the trunk, at 1 ft. from the ground, 9 ft. in diameter; in Devonshire, at Endsleigh Cottage, 22 years planted, and 40 ft. high; in Dorsetshire, at Bridehead House, 77 years old, and 40 ft. high: in Kent, at Cobham Hall, 98 ft. high; the diameter of the trunk, at 1 ft. from the ground, 5 ft. 4 in.; the contents of the tree in timber, 450 ft.; in Somersetshire, at Brockley Hall, 90 ft. high, and the diameter of the trunk 2 ft. 10 in.

A. *Pseùdo-Plátanus North of London.* In Berkshire, at Bear Wood, 15 years planted, 30 ft. high; in Worcestershire, at Hadzor House, 10 years planted, and 28 feet high; at Hagley, 9 years planted, and 17 ft. high; in Lancashire, at Lancaster, in the Friends' Burying Ground, several fine trees about a century old, between 60 ft and 70 ft. high, with trunks from 2½ ft. to 3 ft. in diameter, and heads 60 ft. to 70 ft in diameter; at Latham House, 40 years planted, and 45 ft. high; at Aldcliff Hall, 50 ft. high, diameter of the trunk 40 ft, and of the head 60 ft.; in Northumberland, at Woolsington, 55 ft. high, the diameter of the trunk 8 ft. 4 in., and of the head 50 ft; in Suffolk, at Finborough Hall, 70 years planted, and 70 ft. high; at Livermore, *A.* P. variegàta, 13 years planted, 21 ft. high; in Yorkshire, at Hackness, 70 years planted, and 74 ft. high; at Grimston, 12 years planted, and 40 ft. high; in Warwickshire, at Coombe Abbey, *A.* P. variegàta, 60 years planted, and 53 ft. high; in Rutlandshire, at Belvoir Castle, the species 18 years planted, and 24 ft. high; in Hertfordshire, at Cheshunt, *A.* P. variegàta, 10 years planted, 28 ft. high.

A. *Pseùdo-Plátanus in Scotland.* In Mid-Lothian, at Hopeton House, 50 ft. high, the trunk 4 ft. 10 in. in diameter, and the diameter of the space covered by the branches 90 ft.; at Moredun Park are two trees 50 ft. high and 70 ft. high, the trunks 3 ft. 3 in. and 4 ft. 6 in. in diameter, and the heads from 50 ft. to 60 ft. in diameter; at Calder House, one standing on the pleasure-ground on the road from the house to the church, measured, on the 4th of October, 1799, 17 ft. 7 in. in girt, and at the ground 20 ft. 3 in. Its trunk was 12 ft. high, with a clear bole, after which it divided into five great arms. Its branches extended in diameter about 60 ft. This tree is known to have been planted before the Reformation; and it is supposed to be not less than 300 years old; yet it has the appearance of being perfectly sound. It was the tree to which, long ago, the iron jugs (a species of pillory) were fastened. The tree came gradually to grow over them; and they have now been completely enclosed in its trunk for a considerable time. At the place where they are enclosed, there is a great protuberance, on the south side of the tree, at the height of between 4 ft. and 5 ft." (*Lauder's Gilpin*, i. 272.) At Preston Hall, there is a tree, 19 ft. 3 in. in circumference, at 1 ft. from the ground; at Niddry Marischall, one which, at 3 ft. from the ground, measures 19 ft. 4 in. In Renfrewshire, there is one 65 ft. high, diameter of the trunk 5 ft. 2 in., and of the head 80 ft.; at Bishopton, one 60 ft. high, the trunk 6½ ft. in diameter, and the contents in timber 720 ft., figured by Strutt in his *Sylva Britannica*; in East Lothian, at Tynningham, 52 ft. high, diameter of the trunk 3 ft. 4 in., and of the head 96 ft.; in Berwickshire, at Yester, at 1 ft. from the ground, 19 ft. in circumference; at Newbattle Abbey, many large trees, planted before the Reformation; one planted before the year 1530; at Nisbet, 65 ft. high in 1795 (*Lauder's Gilpin*, vol. i. p. 272.); in Ayrshire, at Dornholm, 70 ft. high; at Blair, 100 years planted, 70 ft. high; at Cassilis, the diameter of the head 84 ft., and of the trunk 5 ft.; in Clackmannanshire, in the garden of the Dollar Institution, 12 years planted, and 28 ft. high; in Perthshire, in Messrs. Dickson and Turnbull's Nursery, Perth, 24 years planted, 57 ft. high, the diameter of the trunk 28 in., and of the head 30 ft.; at Taymouth, 200 years planted, and 100 ft. high, the diameter of the trunk 6 ft., and of the head 40 ft.; in Sutherlandshire, at Dunrobin Castle, 63 ft. high, diameter of the trunk 2 ft. 5 in., and of the head 27 ft.; another tree there, 180 years planted, 68 ft. high, and the trunk 3½ ft. in diameter; in Stirlingshire, at Airthrey Castle, 60 ft. high, the diameter of the space covered by the head 66 ft.; at Callendar Park, 70 ft. high, the diameter of the trunk 5 ft., and of the head 66 ft.; at Sauchie, 89 ft. high, the diameter of the trunk 3 ft. and of the head 50 ft.

A. *Pseùdo-Plátanus in Ireland.* In Dublin, at the Glasnevin Botanic Garden, 25 years planted, and 24 ft. high; at Cypress Grove, 45 ft. high; in Connaught, at Makree Castle, 77 ft. high, diameter of the trunk 4 ft., and of the head 68 ft.; in Galway, at Coole, 40 ft. high, the diameter of the trunk 14 in., and of the head 38 ft.; in Down, at Castle Ward, 134 years planted, and 64 ft. high, the diameter of the trunk 3 ft., and of the head 42 ft.

A. *Pseùdo-Plátanus in Foreign Countries.* In France, in the Botanic Garden at Toulon, 48 years planted, and 90 ft. high; in the neighbourhood of Nantes, 60 ft. high. In Hanover, at Schwöbber, 80 ft. high; in Saxony, at Wörlitz, 65 years planted, 50 ft. high: in Austria, in the garden of the University of Vienna, 30 years planted, and 40 ft. high; at Laxenburg, 30 years planted, and 35 ft high. In Prussia, in the Pfauen Insel, at Potsdam, 40 years planted, and 45 ft. high. In Bavaria, at Munich, 26 years planted, and 15 ft. high. In Switzerland, at Friburg, is a tree supposed to be about 500 years old, the trunk is 26½ ft. in circumference at 1 ft. from the ground. In Sweden, at Lund, 14 years planted, and 38 ft. high.

Commercial Statistics. Price of plants, in the London nurseries, seedlings

10*s.* a 1000, plants 6 ft. high 2*s.* each, the variegated varieties 2*s.* 6*d.* each, the purple-leaved 3*s.* each. At Bollwyller, 80 cents a plant, and the variegated varieties 1 franc 20 cents a plant; at New York, ?.

‡ 9. *A.* OBTUSAˋTUM *Kit.* The obtuse-*lobed-leaved* Maple.

Identification. Kit. in Willd. Spec., 4. p. 948.; Dec. Prod., 1. p. 594.; Don's Mill., 1. p. 949.
Synonymes. *A.* neapolitànum *Tenore*; *A.* hýbridum, in the Lond. Hort. Soc. Gard. in 1834; the Neapolitan Maple.
Engravings. Tratt. Arch., 1. No. 14.; our *fig.* 124. in p. 450, 451.; and the plate of this species in our Second Volume.

Spec. Char., &c. Leaves cordate, roundish, 5-lobed; lobes bluntish (or pointed), repandly toothed, velvety beneath. Corymbs pendulous. Pedicles hairy. Fruit rather hairy, with the wings somewhat diverging. (*Don's Mill.*, i. p. 649.) The flowers are pendulous, pale, and few in the panicle. A large tree, with the general habit of *A.* Pseùdo-*P*látanus, but apparently of more vigorous growth; a native of Hungary, Croatia, and many parts of Italy; and introduced into England in 1825. "On all the hills and lower mountains of the kingdom of Naples, in Camaldoni, Castellamare, and the Abruzzi, it is found abundantly, growing, usually, to the height of 40 ft. It is extremely striking, with its reddish purple branches, in the wood of Lucania, between Rotonda and Rubia; and, in the Basilicate, and Calabria, it is said, by Tenore, to acquire colossal dimensions. It is certainly very singular that so fine a tree as this, occupying so large a tract of country frequently visited by English tourists, should be almost unknown in this country; and yet, although it is perfectly hardy, and very easily multiplied, it is scarcely ever met with in any but botanical collections." (*Pen. Cyc.*, vol. i. p. 77.) There is a noble specimen of this tree in the garden of the London Horticultural Society at Chiswick; which, though only 10 or 12 years planted, in 1835 had attained the height of 26 ft., with a trunk 5½ in. in diameter, as shown in our plate in Vol. II.

‡ 10. *A.* BARBAˋTUM *Michx.* The bearded-*calyxed* Maple.

Identification. Michx. Fl. Bor. Amer., 1. p. 252.; Pursh, Fl. Amer. Sept., 1. p. 267.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 649.
Synonymes. *A.* caroliniànum *Bolt.*; *A.* trilobàtum, in the London Hort. Soc. Gard. in 1835.
Engravings. A leaf is shown in Pen. Cyc., vol. 1. p. 76.; and several in our *fig.* 125. in p. 452.

Spec. Char., &c. Leaves heart-shaped, 3-lobed, nearly equally serrated, nearly smooth beneath. Clusters sessile. The stalks of the female flowers simple, of the male flowers branched. Calyx bearded internally. Keys smooth, diverging but little. (*Pen. Cyc.*) This species, according to Pursh, inhabits North America, between New Jersey and Carolina, in deep pine and cedar swamps. It was found on the west side of the Rocky Mountains, about the sources of the Columbia, by Douglas; but Dr. Hooker says the specimens sent home by him are too young to enable him to form an opinion as to the correctness of the name. There are two plants of this species, under the name of *A.* trilobàtum, in the garden of the London Horticultural Society, where they form low trees, or bushes, about 10 ft. high. In its native country, the tree is said to grow to the height of 20 ft. The plants named *A.* barbàtum, in the London Horticultural Society's Garden, and in Messrs. Loddiges's arboretum, and in some of the nurseries in 1835, seem to be *A. p*latanöìdes. The leaves, and the general appearance of the plant, are those of *A.* Pseùdo-*P*látanus, diminished, in all its parts, to one third of its usual size. This species was introduced in 1812; and plants of it, under the name of *A.* trilobàtum, may be obtained in some of the nurseries.

D. *Leaves 5, rarely 7-lobed.*

‡ 11. *A.* O′PALUS *Dec.* The Opal, *or Italian*, Maple.

Identification. Ait. Hort. Kew., 3. p. 436.; Dec. Prod., 1. p. 594.; Don's Mill., 1. p. 649.
Synonymes. *A.* O′palus *Lin.*, *Mill.*, and other authors; *A.* rotundifòlium *Lam. Dict.*, 3. p. 382.; *A.* itálicum *Lanth. Ac.*, No. 8.; *A.* villòsum *Pres.*; l'E′rable Opale, E′rable à Feuilles rondes, or E′rable d'Italie, *Fr.*

Derivation. The specific appellation of O'palus has been given to this species, probably from the thick opal-like aspect of the leaves.
Engravings. Baudril. Traité, &c., vol. 5. p. 13.; our *fig.* 126. in p. 453.; and the plate of this species in our Second Volume.

Spec. Char., &c. Leaves more or less heart-shaped, roundish, 5-lobed, smooth beneath; the lobes generally obtuse, and coarsely serrated. Flowers in drooping corymbs. Keys smooth. (*Pen. Cyc.*) A tree, a native of Corsica; from which country it was brought to Paris by M. Richard, and thence to England, in 1752. It is described by Baudillart as a branchy tufted tree, covered with smooth leaves, somewhat coriaceous, roundish, indented, with five blunt lobes, deep green on the upper surface, and somewhat glaucous underneath, with long red petioles. Its flowers are whitish, in short racemes; and the small fruits, or keys, which succeed them, are almost round. It found in forests and on mountains in Corsica, and in Italy; where, from the denseness of its shade, it is sometimes planted by road sides, and in gardens near houses. The red colour of the petioles, of the leaves, of the fruits, and even the red tinge of the leaves themselves, more especially in autumn, give it rather a morbid appearance. It pushes later in the spring than most of the other species. The wood is veined, and very close: in Italy, it is used for gun-stocks; and the roots, especially of those trees which have been often cut down, are very much sought after on account of their hardness, and their curious knots and blotches, which render them suitable for making snuff-boxes, and for inlaid work.

Variety. A. *coriàceum*, in the arboretum of the Messrs. Loddiges, seems to be a variety of this species; but *A.* opulifòlium, No. 14, as described by Baudrillart, seems quite distinct from it.

Statistics. There is a plant of this species in the garden of the London Horticultural Society, which answers perfectly to M. Baudrillart's description. The largest tree in the neighbourhood of London, bearing the name of *A.* O'palus, is at Fulham Palace; where, in 25 years, it has attained the height of 35 ft.; in Sussex, at Langham Park, 9 years planted, it is 20 ft. high; in Staffordshire, at Trentham, 12 years planted, it is 7 ft. high; in Yorkshire, at Grimston, 12 years planted, 24 ft. high; in Scotland, in the garden of the Caledonian Horticultural Society, Edinburgh, 8 years planted, and 12 ft. high; at Hopeton House, 18 years planted, and 18 ft. high; in Argyllshire, at Toward Castle, there is a tree, which is said to be considered *A*`cer O'palus by Dr. Hooker, which is no less than 50 ft. high, and girts 4 ft. at 1 ft. from the ground. In France, in the Jardin des Plantes, 30 years planted, and 34 ft. high; in the Botanic Garden at Toulon, 40 years planted, and 30 ft. high. In Belgium, in the Botanic Garden at Ghent, 13 ft. high. In Hanover, at Schwöbber, 80 ft. high (most probably some other species, ? *A.* obtusàtum); in Saxony, at Wörlitz, 23 ft. high. In Austria, in Rosenthal's Nursery, at Vienna, 16 years planted, and 12 ft. high.

Commercial Statistics. Price, in London, from 1*s.* to 1*s.* 6*d.* a plant; and at Bollwyller, 1 franc.

‡ 12. *A.* OPULIFO`LIUM *Vill.* The Guelder-Rose-leaved Maple.

Identification. Vill. Dauph., 4. p. 802.; Don's Mill., 1. p. 649.
Synonymes. *A.* hispánicum *Pour. Act. Toul.*, 3. p. 305.; *A.* vérnum *Reyn.*; *A.* montànum *C. Bauhin, Pin.*, 431.; E'rable duret, or E'rable à Feuilles d'Obier, and Ayart in Dauphiné, *Fr.*; Schneeboll-blättriger Ahorn, *Ger.*
Engraving. Tratt. Arch., 1. No. 13.; and the plate of this species, in our Second Volume.

Spec. Char., &c. Leaves cordate, roundish, 5-lobed. Lobes obtuse, bluntly and coarsely toothed. Corymbs almost sessile. Ovaries and fruit smooth, with wings rather diverging. (*Don's Mill.*, i. p. 649.) According to Dr. Lindley, in the *Pen. Cyc.*, this kind is the same as *A.* O'palus; but, according to Baudrillart, it is quite distinct. Its height, the latter says, is from 20 ft. to 25 ft. or 30 ft. It grows naturally in the French Alps, and on the Pyrenees. Its bark is grey; its leaves have 5 lobes, somewhat rounded, a little toothed, and greener above than below. It flowers are in drooping racemes; its fruits are swelled out, and their wings spreading; so much so as to form almost a straight line, like those of *A.* platanöides. It is common on the rocks of Mount Jura; and is considered preferable to all the other maples for its wood, which is hard and compact, without sap-wood, not easily split, and so homogeneous in its texture, that it is almost impossible to distinguish in it the annual layers. It takes the finest polish; it is white, lightly shaded with lemon-colour, sometimes exhibiting flashes or shades of red, but not red veins. Completely dried, it weighs 52 lb. 11 oz. the cubic foot. In Bugly it is used by wheelwrights, and makes excellent naves to wheels.

"M. Maratray, inspector of forests in the department of Mount Jura, sent, in 1807, to the Administration of Forests in Paris, a specimen of this wood, which justified all that had been said of the fineness and homogeneousness of its grain. He also sent seeds, part of which came up the first year, and the remainder the year following. The plants have made tolerable progress; but it remains to be known, whether, in fertile soil, the tree will preserve the valuable quality of its wood." (*Traité, &c.*, i. p. 51.) The plants have been distributed among the different government gardens of France; and particularly those of Versailles, under the direction of M. Bosc. At Bollwyller, there are plants of this species which, it is said, can be furnished of considerable size; and they are designated in the *Catalogue*, "*A*`cer opulifòlium, non *A.* O'palus;" price 1 franc 50 cents. There was a tree in the garden of the London Horticultural Society, in 1835, which differed somewhat from *A.* O'palus, and seemed to us intermediate between that species and *A.* barbàtum, or, as it was then marked, in 1835, *A.* trilobàtum; but, whether it was the *A.* opulifòlium of Villars and Baudrillart, we are unable to say.

‡ 13. *A.* CIRCINA`TUM *Pursh.* The round-*leaved* Maple.

Identification. Pursh Fl. Amer. Sept., 1. p. 267.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 651.
Engraving. Hook. Amer., t. 39.; and our *fig.* 112., and *fig.* 127. in p. 454.

Spec. Char., &c. Leaves orbicular, rather cordate at the base, 7-lobed, smooth on both surfaces; lobes acutely toothed; nerves and veins hairy at their origins. (*Don's Mill.*, i. p. 651.) A tree from 20 ft. to 40 ft. high. Branches slender, pendulous, and crooked; often taking root, in the manner of those of many species of *F*ìcus. Bark smooth, green when young, white when fully grown. Leaf the length of the finger, upon rather a short footstalk, membranaceous, heart-shaped, with 7—9-lobes, and 7—9-nerves, smooth above, except hairs in the axils of the nerves; downy beneath, and in the axils of the nerves woolly: lobes ovate, acute, and acutely serrated; the sinuses acute; the nerves radiate from the tip of the petiole, and one extends to the tip of each lobe. Flowers (produced in April and May) of a middling size, in nodding corymbs, that are on long peduncles. (*Hook. Fl. Bor. Amer.*) This is a very marked and beautiful species; distinguishable, at sight, by the regular form of its leaves, and pale reddish green colour.

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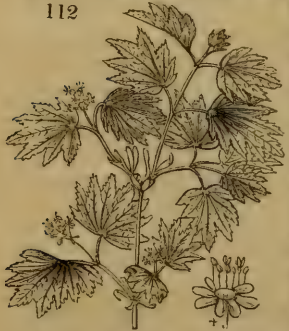


Geography. On the great rapids of Columbia River. (*Lewis*, in *Pursh's Fl. Am. Sept.*) Common along the north-west coast of North America, between lat. 43° and 49°. (*Douglas; D. Scouler.*) *A.* circinàtum, like *A.* macrophýllum, is exclusively confined to the woody mountainous country that skirts the shores; and there, among the pine forests, it forms almost impenetrable thickets. (*Douglas*, in *Hook. Fl. Bor. Amer.*, vol. i. p. 112.)

Properties and Uses. The wood is fine, white, and close-grained, very tough, and susceptible of a good polish. From the slender branches the native tribes make the hoops of their scoop-nets, which they employ for taking the salmon at the rapids, and in the contracted parts of the river.

Statistics. There is a plant of this species, in the London Horticultural Society's Garden, about 2 ft. high; and one at Messrs. Loddiges's about the same height. In Berkshire, at High Clere, there is a tree which has blossomed and ripened seeds.

♣ 14. *A.* PALMA`TUM *Thunb.* The palmate-*leaved* Maple.

Identification. Thunb. Fl. Jap., p. 161.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 650.
Engraving. Tratt. Arch., 1. No. 17.; and our *fig.* 128. in p. 455.

Spec. Char., &c. Leaves smooth, palmately divided into 5—7-lobes beyond the middle; lobes acuminated, oblong, serrated. Umbels 5—7-flowered. (*Don's Mill.*, i. p. 650.) A native of Japan, and introduced in 1832.

Branches and corolla purple. Fruit woolly. There are plants of this species in the garden of the London Horticultural Society, the leaves of which, as will be seen by our *fig.* 128., are strikingly distinct. The plants appear to be rather tender, and we would recommend them to be tried, in the first instance, against a wall.

¥ 15. *A.* ERIOCA'RPUM *Michx.* The hairy-fruited, *or white*, Maple.

Identification. Michx. Fl. Amer. Bor., 2. p. 213.; Don's Mill., 1. p. 650.
Synonymes. *A.* dasycárpum *Willd. Spec.*, 4. p. 985.; *A.* tomentòsum *Hort. Par.*; *A.* glaúcum *Marsh.*; *A.* virginiànum *Duh.*; *A.* rùbrum *Wagenh.*; white, or soft, Maple, *United States*; Sir Charles Wager's Maple; E'rable à Fruits cotonneux, or E'rable blanc, *Fr.*; rauher Ahorn, *Ger.*
Engraving. Desf. Ann. Mus., 7. t. 25.; Tratt. Arch., 1. No. 8.; our *fig.* 129. in p. 456.; and the plate of this species in our Second Volume.

Spec. Char., &c. Leaves truncate at the base, smooth and glaucous beneath, palmately 5-lobed, with blunt recesses, and unequally and deeply toothed lobes. Flowers conglomerate, on short pedicels, apetalous, pentandrous. Ovaries downy. (*Don's Mill.*, i. p. 650.) A large tree, with pale greenish yellow seeds, and flowers tinged with pale pink. They are produced in April and May; and seeds are ripened by midsummer, from which plants may be raised the same year. Introduced by Sir Charles Wager, in 1725.

Description. The trunk of the white maple is low, and divides itself into a great number of limbs, so divergent, that Michaux says they form a head more spacious, in proportion to the size of the trunk, than that of any other tree with which he is acquainted. The tree blooms early in the spring: its flowers are small and sessile, with a downy ovarium. The fruit is larger than that of any other species which grows east of the Mississippi. It consists of two capsules joined at the base, each of which encloses one roundish seed, and is terminated by a large, membranous, falciform wing. In Pennsylvania, it is ripe about the 1st of May; and a month earlier on the Savannah river, and in Georgia. At this period the leaves, which have attained half their size, are very downy underneath: a month later, when fully grown, they are perfectly smooth. They are opposite, and supported by long petioles; they are divided by deep sinuses into 4 lobes, are toothed on the edges, of a bright green on the upper surface, and of a beautiful white beneath. The foliage, however, is scattered, and leaves an open thoroughfare to the sunbeams. "The young leaves, and young germs, are very downy; but the old leaves, and perfect fruit, are glabrous." (*Hook, Fl. Amer.*, p. 114.) The wood of this maple is very white, and of a fine grain; but it is softer and lighter than that of the other species in the United States, and, from its want of strength and durability, is little used. (*Michaux*, p. 215.) In the United States, as well as in England, this species is often confounded with *A*'cer rùbrum, which, in the leaves, it nearly resembles; but it differs in its inflated woolly fruit, expressed in the terms eriocárpum and dasycárpum, and in its flowers, which are produced in small compact axillary groups, and are almost, or quite, sessile; while those of *A.* rùbrum are produced in axillary groups on peduncles of irregular length (the shortest being about 1 in., and the longest about 2 in.), and are succeeded by smooth compressed fruits.

Geography. *A.* eriocárpum, in the Atlantic parts of the United States, commences on the banks of Sandy River, in the district of Maine; and those of the Connecticut, near Windsor, in Vermont, are its most northern points. But, like many other trees, it is pinched by the rigorous winters of this latitude, and never reaches the size which it attains a few degrees farther south. It is found on the banks of all the rivers which flow from the mountains to the ocean; though it is less common along the streams which water the southern parts of the Carolinas and of Georgia. In no part of the United States is it more multiplied than in the western country; and nowhere is its vegetation more luxuriant than on the banks of the Ohio, and of the great rivers which empty themselves into it. There sometimes alone, and sometimes mingled with the willow, which is found along all these waters, it contributes singularly, by its magnificent foliage, to the embellishment of the scene. The brilliant white of the leaves beneath forms a striking contrast with the bright green above; and the alternate reflection of the two surfaces in the water heightens the beauty of this wonderful moving mirror, and aids in forming an enchanting picture; "which," says "Michaux, during my long excursions in a canoe in these regions of solitude and silence, I contemplated with unwearied admiration. Beginning at Pittsburg, and even some miles above the junction of the Alleghany and Monongahela rivers, white maples, with trunks 12 ft. or 15 ft. in circumference, are continually to be met with at short distances." (*Michx*, p. 213, 214.)

History. This tree was introduced by Sir Charles Wager, in 1725, and has since been in general cultivation. It was at first supposed to be a variety of *A.* rùbrum; and, as such, is mentioned in Martyn's *Miller*. In the first edition of *Du Hamel*, the two sorts are described as distinct varieties; and their specific distinctions were afterwards pointed out by Desfontaines, in the *Ann. du Mus. d'Hist. Nat. de Paris*, vol. vii. p. 412.; the principal distinction consisting in the fruit of *A.* eriocárpum being woolly, and that of *A.* rùbrum being smooth. Both species are now in very general cultivation, throughout Europe, as ornamental trees.

Properties and Uses. In America, wooden bowls are sometimes made of the wood of this species, when that of the tulip tree cannot be procured. At Pittsburg, and in the neighbouring towns, it is used, in cabinet-making, instead of holly, and for inlaying furniture made of mahogany, cherry tree, and walnut; though it is not exactly suitable for this purpose, as it soon changes colour. The hatters of Pittsburg prefer the charcoal of this wood to every other for heating their boilers, as it affords a more uniform and durable heat than any other. Sugar is made from this species in districts where the tree abounds, but the produce is not above half that obtained from the sap of the sugar maple. The sap is in motion very early in this species, beginning to ascend about the 15th of January; so that, when sugar is made from it, the work of extracting it is sooner completed. The cellular integument rapidly produces a black precipitate with sulphate of iron. (*Michaux.*) In Europe, this tree is chiefly planted for ornamental purposes, for which it is admirably adapted by the rapidity of its growth, the graceful divergent direction of its branches, the beauty of its leaves, and the profusion of its early flowers. In mild seasons, such as the present spring of 1836, these flowers begin to burst from their buds in the first week in January; and they are often fully expanded by the end of February or beginning of March.

Soil, Situation, Propagation, &c. *A.* eriocárpum requires a deep free soil, and more moisture than most of the other species. Though it will not grow in swamps, yet it attains its greatest dimensions on the alluvial banks of rivers which are occasionally inundated. It ripens its seeds, both in America and Britain, by midsummer, or earlier; and, if these are immediately sown, they come up, and produce plants which are 8 in. or 10 in. high, by the succeeding autumn.

Statistics. The largest tree in the neighbourhood of London is at Kew, where, in 25 years, it has attained the height of 50 ft.; in Staffordshire, at Trentham, it is also 50 ft. high. Price of plants, in London, 1*s.* 6*d.* each; at Bollwyller, 1 franc; at New York, 25 cents, and seeds 1 dollar per quart.

♆ 16. *A.* RÙBRUM *L.* The red-*flowering, or scarlet*, Maple.

Identification. Lin. Spec. 1496.; Hayne Dend., p. 213.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 650.
Synonymes. *A.* virginiànum *Herm. Par.*, t. 1., *Mill. Ill.*, t. 8. f. 4., *Trew. Sel.*, t. 85, 86.; *A.* coccíneum *Ait.*; soft Maple, Swamp Maple, red Maple; E'rable rouge, *Fr.*; rother Ahorn, *Ger.*
Engravings. Michx. Arb., 2. t. 14.; Desf. Ann. Mus., 7. p. 413. t. 25.; Tratt. Arch., 1. No. 9.; Schmidt. Arb., 1. t. 6.; Krause, t. 119.; our *fig.* 130. in p. 457.; and the plate of the tree in our Second Volume.

Spec. Char., &c. Leaves cordate at the base, glaucous beneath, deeply and unequally toothed, palmately 5-lobed, with acute recesses. Flowers conglomerate, 5-petaled, pentandrous. Ovaries smooth. (*Don's Mill.*, i. p. 650.) A tree of the middle size, from North America in 1656, remarkable for its red flowers, which are produced in April and May.

Varieties.

♆ A. *r.* 2 *coccíneum* and ♆ A. *r.* 3 *intermèdium* are varieties of this species, differing so very little from it as hardly to be worth cultivation as distinct. The leaves of *A*. r. coccíneum are somewhat redder in spring, when they expand, than those of A. rùbrum.

Description. In America, the red-flowering maple, Michaux observes, is the earliest tree, the bloom of which announces the return of spring; it is in flower, near New York, from the 10th to the 15th of April. The blossoms, which are of a beautiful purplish or deep red, unfold more than a fortnight before the leaves. They are aggregate, and situated at the extremity of the branches. The fruit is suspended by long flexible peduncles, and is of the same hue with the flowers; though it varies in size and in the intensity of its colouring, according to the exposure and dampness of the soil. The keys and the seeds are one half smaller than those of *A*. eriocárpum, and they ripen sooner. The leaves are also smaller than those of that species; but, in most other respects, they resemble them. They are glaucous and whitish underneath; and are palmated, or divided into 3 or 4 acuminate lobes, irregularly toothed. The extremities of this tree, which are formed by numerous twigs united at the base, have a remarkable appearance when garnished with flowers and seeds of a deep red, before vegetation has begun generally to revive. Before the red-flowering maple exceeds 25 ft. or 30 ft. in height, and 7 in. or 8 in. in diameter, its bark is perfectly smooth, and marked with white blotches, by which it is easily distinguished. Afterwards, the trunk, like that of the white oak (*Q*uércus álba) and sweet gum (Liquidámbar Styracíflua), becomes brown and chapped. In this tree, as in others which grow in wet places, the sap-wood bears a large proportion to the heart-wood, if, indeed, the name of heart-wood can properly be given to the irregular column, star-like in its horizontal section, which occupies the centre of large trunks, and which has points, from 1 in. to 3 in. in length, projecting into the sap-wood. (*Michaux*, p. 218, 219.) The wood weighs, when dry, 44 lb. per cubic foot. The tree only attains its full size in rich soils. Somewhat large forests of it in America, when their summits are covered with flowers, are said to present a very singular and grand appearance.

Geography. In America, towards the north, the red-flowering maple appears first, scantily, about Malebaye, in Canada, in 48° north latitude; but, in proceeding southward, it soon becomes more common, and abounds in Florida and Lower Louisiana. Of all the trees which flourish in grounds which are occasionally overflowed, this species is most multiplied in the middle and southern states. It occupies, in great part, the borders of the creeks, and abounds in all the swamps, which are often inundated, and always miry. In these situations it is accompanied by the black gum (Nýss*a* sylvática), sweet gum (Liquidámbar Styracíflua), shellbark hickory (*C*àrya squamòsa), swamp white oak (Quércus *P*rìnus díscolor), black ash (*F*ráxinus *s*ambucifòlia), and white ash (*F*ráxinus quadrangulàta). To these are added, in the Carolinas and Georgia, the small magnolia, or swamp bay (Magnòl*ia* glaúca), the water oak (*Q*uércus aquática), loblolly bay (Gordòn*ia* Lasiánthus), tupelo (Nýss*a* aquática), and the red bay (*L*aúrus carolinénsis). It is a remarkable fact, that, west of the mountains, between Brownsville and Pittsburg, the red-flowering maple is seen growing on elevated ground, with the oaks and the walnuts; but, in such situations, it does not attain such ample dimensions as in Pennsylvania and New Jersey: in these states exist extensive marshes, called maple swamps, exclusively covered with it; where it is found 70 ft. high, and 3 ft. or 4 ft. in diameter. (*Michaux*, p. 217, 218.) Elliot observes that, in "descending the mouths of our large rivers, the red maple is the last tree found in the swamps, the tree diminishing in size as the soil becomes impregnated with salt, until it dwindles down to a shrub, and, mingling with the candleberry myrtle (*M*yrìca cerífera) and *B*áccharis *h*alimifòlia, it finally disappears." (*Hook, Fl. Bor. Amer.*, i. p. 114.)

History. This tree was cultivated by Mr. John Tradescant, jun., in 1656. It was for a long time confounded with *A*. eriocárpum. It is described, in the first edition of *Du Hamel*, as *A*ˋcer flóribus rùbris; and *A*. eriocárpum, as *A*ˋcer virginiànum flòre majòre. Miller, in 1741, says, the Virginian flowering maple (*A.* rùbrum) was raised from seeds, which were brought from Virginia many years since, by Mr. John Tradescant, in his garden at South Lambeth, near Vauxhall; and, since, in the garden of the Bishop of London at Fulham, where it has flowered for several years, and produced ripe seeds, from which several plants have been raised. Upon a survey of the state of the garden at Fulham, in October 1793, the *A*'cer rùbrum planted by Bishop Compton, at 3 ft. from the ground, measured, in girt, 4 ft. 3 in., and its computed height was 40 ft. On visiting the same gardens again in 1809, the tree was gone. (*Lyson's Env. London*, 1810, 2d edit. vol. ii. p. 228.) Miller, in 1755, speaking of *A.* eriocárpum, says, this the gardeners distinguish by the title of Sir Charles Wager's maple; the other being called the scarlet-flowering maple; but, as there is no difference in [the form of] their flowers, seeds, or leaves, so they must be deemed but one species, as they are only accidental varieties arising from seed. In continuation, he says, speaking of the scarlet variety, that it flowers about the middle of April, and that Sir Charles Wager's maple flowers about the middle or latter end of March. In Martyn's *Miller*, published in 1807, the two are still considered as the same species. We have no doubt of their being in fact only varieties, or races, of the same species; but we have kept them distinct, as they are remarkably different, both in the colour of their flowers, and in their habit of growth, though not much so in their leaves. Michaux was the first to distinguish the two kinds as species, and the distinction (as before observed, p. 424.) was first pointed out in detail by Desfontaines. As *A.* rùbrum is not a rapidly growing tree, like *A.* eriocárpum, it has not been so extensively cultivated as that species; nevertheless, it is to be found in most collections, and it is propagated in the principal European nurseries.

Properties and Uses. In America, the wood of the red-flowering maple is applicable to several uses. It is harder than that of the white maple, and of a finer and closer grain; hence it is easily wrought in the lathe, and acquires, by polishing, a glossy and silken surface. It is solid, and, for many purposes, it is preferred by workmen to other kinds of wood. It is principally employed for the seats of Windsor chairs: the pieces are prepared in the country; and so considerable is the demand, that boats laden with them frequently arrive at New York and Philadelphia, where an extensive manufactory is carried on for the consumption of the neighbouring towns, and for exportation to the southern states and to the West India Islands. The whole frame of japanned chairs is made of this wood, except the back, for which hickory (*Cà*rya) is chosen, on account of its superior strength and elasticity. The frame, the nave, and the spokes of spinning-wheels are made of the red maple. At Philadelphia, it is exclusively used for saddle-trees; and, in the country, it is preferred for yokes, shovels, and wooden dishes, which are brought to market by the country people, and purchased by the dealers in wooden ware. It sometimes happens that, in very old trees, the grain, instead of following a perpendicular direction, is undulated; and this variety bears the name of the curled maple. This singular arrangement is never found in young trees, nor in the branches of even such as exhibit it in the trunk: it is also less conspicuous in the centre than near the circumference. Trees having this character of wood are rare, and do not exist in the proportion of one to a hundred. The serpentine direction of the fibre, which renders them difficult to split and to work, produces, in the hands of a skilful mechanic, the most beautiful effects of light and shade. These effects are rendered more striking, if, after smoothing the surface of the wood with a double-ironed plane, it is rubbed with a little sulphuric acid, and afterwards anointed with linseed oil. On examining it attentively, the varying shades are found to be owing entirely to the inflection of the rays of light; which is more sensibly perceived in viewing it in different directions by candlelight. Before mahogany became generally fashionable in the United States, the best furniture in use was made of the red-flowering maple, and bedsteads are still made of it, which, in richness and lustre, exceed the finest mahogany.

At Boston, some cabinet-makers saw it into thin plates for inlaying mahogany; but the most constant use of the curled maple is for the stocks of fowling-pieces and rifles, which to elegance and lightness unite toughness and strength, the result of the twisted direction of the fibres. The cellular matter of the inner bark is of a dusky red. By boiling, it yields a purplish colour, which, on the addition of sulphate of iron, becomes dark blue approaching to black. It is used in the country, with a certain portion of alum in solution, for dyeing black. The wood of the red-flowering maple does not burn well, and is so little esteemed for fuel, that it is rarely brought for that purpose into the cities. It has but little strength, is liable to injury from insects, and ferments and speedily decays when exposed to the alternations of dryness and moisture. For these reasons, though it is now extensively used in America, its importance in the arts is not sufficient to entitle it to preservation; and Michaux supposes that, when artificial plantations become necessary in that country, the red maple will be altogether omitted. The French Canadians make sugar from the sap of this maple, which they call *plaine*; but, as in the preceding species, the product of a given measure is only half as great as that obtained from the sugar maple. (*Michaux.*) In Britain, and throughout Europe, the sole use of the red-flowering maple is as an ornamental tree; and, whether we regard the beauty of its flowers and opening leaves in early spring; of its red fruits in the beginning of summer, or its red foliage in autumn, it deserves to be considered one of the most ornamental of hardy trees. Unfortunately, in British nurseries, it is generally raised by layers; whereas, if it were grafted on *A.* eriocárpum, or raised from seed, as it is said to be on the Continent (for, whether it be considered as a race or a species, it will reproduce itself), the plants would be of much more vigorous growth.

Soil, Situation, Propagation, &c. Contrary to the general character of the maples, this species is said to thrive best in moist soil, which must, however, at the same time, be rich; and, for the tree to attain a large size, the situation ought to be sheltered. In Britain, it is chiefly propagated by layers; but, on the Continent, almost always by seeds, which ripen before midsummer, even sooner than those of *A.* eriocárpum, and, if sown immediately, come up the same season. The seeds, even when mixed with soil, do not keep well; and, in general, but a small proportion of those sent home from America vegetate in Europe.

Statistics. In the neighbourhood of London, the largest tree is at Kew, which, in 45 years, has attained the height of 40 ft.: one at Purser's Cross is 35 ft. high; and at Kenwood, in 38 years, the tree has attained the height of 34 ft. In Berkshire, at White Knights, 30 years planted, it is 18 ft. high; in Hertfordshire, at Cheshunt, 8 years planted, it is 22 ft. high; in Staffordshire, at Trentham, it is 50 ft. high; in Surrey, on an eminence in the arboretum at Milford, there is a tree 40 ft. high, which, in autumn, when the leaves have assumed their dark red colour, looks like a column of scarlet, and is seen from a great distance all round the country. In Surrey, at Farnham Castle, a tree, 45 years planted, is 50 ft. high. In Scotland, in the Glasgow Botanic Garden, there is a tree, 16 years planted, and 20 ft. high; and in the Perth Nursery, one, 14 years planted, which is also 20 ft. high. In Ireland, in Down, at Ballyleady, 60 years planted, it is 28 ft. high; in Kilkenny, at Woodstock, 60 years planted, and 50 ft. high; in Louth, at Oriel Temple, 40 years planted, and 44 ft. high. In France, in the Botanic Garden at Toulon, 45 years planted and 29 ft. high. In Saxony, at Wörlitz, 65 years planted, and 55 ft. high. In Austria, at Laxenburg, 30 years planted, and 25 ft. high. At Brück on the Leytha, 35 years planted, and 32 ft. high. In Prussia, at Sans Souci, 40 years planted, and 38 ft. high. In Bavaria, at Munich, 24 years planted, and 40 ft. high.

Commercial Statistics. Plants, in London, cost from 1*s.* to 1*s.* 6*d.* each, and seeds 4*s.* a quart; at Bollwyller, plants are 1 franc 50 cents each; at New York, plants are 15 cents each, and seeds 2 dollars 25 cents a pound.

‡ 17. *A.* MONSPESSULA`NUM *L.* The Montpelier Maple.

Identification. Lin. Spec., 1497.; Hayne Dend., p. 210.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 649.
Synonymes. *A.* trilobum *Mœnch.*; *A.* trifòlium *Duh.*; *A.* trilobàtum *Lam.*; Erable de Montpelier, *Fr.*; Französischer Ahorn, *Ger.*
Engravings. Pluk. Alm., t. 251. f. 3.; Tratt. Arch., 1. No. 20.; Duh. Arb., 1. t. 10. f. 8.; Schmidt Arb., 1. t. 14.; and Krause, t. 101.; our *fig.* 131. in p. 458.; and the plate of this species in our Second Volume.

Spec. Char., &c. Leaves cordate, 3-lobed; lobes almost entire, and equal. Corymbs few-flowered, pendulous. Fruit smooth, with the wings hardly diverging. A low tree or shrub, found in the south of Europe, and introduced in 1739; flowering in May.

Description, &c. In its native countries, (the south of France and Italy,) this tree attains the height of 30 ft. or 40 ft.; though, in rocky exposed situations, it often forms only a large bush. The trunk is covered with a reddish brown bark. The leaves are chiefly 3-lobed, with an entire margin: they are dark green, and bear a general resemblance to those of *A.* campéstre, which are about the same size, but of a paler green, and 5-lobed. The leaves, in mild seasons, remain on during great part of the winter, more especially in France. The flowers are produced just before the leaves: they are pendulous, on peduncles 1 in. or more long, disposed in dichotomous panicles, or corymbs, one from almost every bud, and consist of from 6 to 10 flowers. The flowers are of a pale yellow colour, and form a great source of attraction to bees. The tree of this species in the London Horticultural Society's Garden has the branches rather ascending, so as to form somewhat a fasciculate head; but in old trees, the head is roundish and spreading.

Geography, History, &c. The tree abounds, in a wild state, in the south of France, and also in Spain and Italy, chiefly on rocky exposed situations. It is also much planted in the south of France as hedges, on account of the persistency of the leaves, which remain on during a great part of winter. The tree was introduced into England in 1739, and is to be met with in most botanic gardens. The wood, which is hard and heavy, is used in France by turners and cabinet-makers; but, in England, the tree may be considered as purely one of ornament; and, as such, it well deserves a place in every collection. It is easily propagated by seeds or by layers.

Statistics. The largest tree in the neighbourhood of London is at Kenwood, where, in 35 years, it has attained the height of 47 ft.; there are two very handsome trees at Ham House, each nearly 30 ft. high: at Kew, 30 years planted, it is 29 ft. high; in the Oxford Botanic Garden, 40 years planted, it is 25 ft. high; in Worcestershire, at Croome, 30 years planted, 25 ft. high; in Staffordshire, at Trentham, 26 years planted, 27 ft. high. In Scotland, in the Perth Nursery, 14 years planted, and 14 ft. high. In France, in the Jardin des Plantes, 130 years planted, and 55 ft. high. In Saxony, at Wörlitz, 45 years planted, 30 ft. high; in Austria, at Vienna, in the garden of the University, 40 years planted, and 36 ft. high; and at Laxenburg, 35 years planted, and 30 ft. high. In Prussia, in the Berlin Botanic Garden, 18 ft. high. In Bavaria, in the Botanic Garden at Munich, 24 years planted, and 20 ft. high.

Commercial Statistics. Plants, in the London nurseries, are 1*s.* 6*d.* each; at Bollwyller, 1 franc 50 cents; at New York, ?.

⚘ 18. *A.* CAMPE'STRE *L.* The *common, or* Field, Maple.

Identification. Lin. Spec., 1497.; Hayne, Dend., p. 211.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 649.
Synonymes. E'rable champêtre, *Fr.*; kleiner Ahorn, Feld Ahorn, *Ger.*
Engravings. Engl. Bot., t. 304.; Fel. Dan., t. 1288.; Reitter and Abel, Abbild., t. 25.; Willd. Abbild., t. 213.; our *fig.* 132. in p. 458.; and the plate of *A.* campéstre var. austrìacum in our Second Volume.

Spec. Char., &c. Leaves cordate, with 5-toothed lobes. Racemes erect. Wings of fruit much divaricated. (*Don's Mill.*, i. p. 649.)

Varieties. There are four forms of this species.

- ⚘ A. *c.* 1 *hebecárpum* Dec. Prod., i. p. 594. *The downy-fruited Field Maple.*— Fruit clothed with velvety pubescence. *A.* campéstre *Wallr.* in *Litt. Tratt. Arch.*, i. No. 7; *A.* mólle *Opiz.* (*Don's Mill.*, i. p. 649.)
- ⚘ A. *c.* 2 *fòliis variegàtis.* *The variegated-leaved Field Maple.*— Next to the variegated-leaved variety of *A.* Pseùdo-*Plátanus*, this seems the handsomest of all the variegated-leaved maples; the leaves preserving, with their variegation, the appearance of health, and the blotches, and stripes of white, or whitish yellow, being distinctly marked.
- ⚘ A. *c.* 3 *collìnum* Wallr. in *Litt. Dec. Prod.*, i. p. 594. *The hill-*inhabiting *Field Maple.*— Fruit smooth. Lobes of leaves obtuse. Flower smaller. *A.* affìne and *A.* macrocárpum *Opiz.* Native of France. (*Don's Mill.*, i. p. 649.)
- ⚘ A. *c.* 4 *austrìacum* Tratt. Arch., i. No. 6. *The Austrian Field Maple.*— Fruit smooth. Lobes of leaves somewhat acuminated. Flowers larger than those of the species. Native of Austria, Podolia, and Tauria. (*Don's Mill.*, i. p. 649.) This variety is larger in all its parts than the original species, and is of much freer growth; the main stem rises erect and straight, and sends out its branches regularly on

every side, so as to form a sort of cone, almost like a fir, as exhibited in the plate of this variety, in our Second Volume. A very handsome tree, from which our drawing was taken, exists in the garden of the London Horticultural Society, and, not far from it, a round-headed shrubby tree of the original species. A subvariety of this sort, with variegated leaves, is propagated in the Bollwyller Nursery.

Description. *A.* c. hebecárpum is the British form of this species; and it is thus characterised by Smith in his *Eng. Flora*, ii. p. 231. A rather small tree, with spreading branches; the bark corky, and full of fissures; that of the branches smooth. Leaves about 1½ in. wide, downy while young, as are their footstalks, obtusely 5-lobed, here and there notched, sometimes quite entire. Flowers green, in clusters that terminate the young shoots, hairy, erect, short, and somewhat corymbose. Anthers hairy between the lobes. Capsules downy, spreading horizontally, with smooth, oblong, reddish wings. The character of the flowers, in being produced upon the young shoots, ascribed to the British field maple by Smith, is one which it possesses, and one in which it differs markedly from certain exotic kinds; as *A.* eriocárpum, *A.* rùbrum, and *A.* monspessulànum; the flowers of which species are produced from buds distinct from those out of which the shoots are developed. In Britain, it seldom attains the height of more than 20 ft., except in a state of cultivation.

Geography. This species is found throughout the middle states of Europe, and in the north of Asia. According to Pallas, it is found in New Russia, and about Caucasus. In Britain, it is common in hedges and thickets, in the middle and south of England; but is rare in the northern counties and in Scotland. It is not a native of Ireland, and, perhaps, not of Scotland.

Properties and Uses. The wood weighs 61 lb. 9 oz. a cubic foot, in a green state, and 51 lb. 15 oz. when perfectly dry. It makes excellent fuel, and the very best charcoal. It is compact, of a fine grain, sometimes beautifully veined, and takes a high polish. It was celebrated among the ancient Romans for tables. In France, it is much sought after by turners, cabinet-makers, and the manufacturers of domestic utensils. The wood of the roots is frequently knotted; and, when that is the case, it is used for the manufacture of snuff-boxes, pipes, and other fanciful productions. The young shoots, being tough and flexible, are employed by the coachmen, in some parts of France, instead of whips. The tree is much used in France for forming hedges, and for filling up gaps in old fences. It is also employed in topiary works, in geometrical gardens, being found to bear the shears better than most other trees. The leaves and young shoots are gathered green, and dried for winter provender for cattle. The sap yields more sugar, in proportion to the quantity taken, than that of the sycamore; but the tree does not bleed freely. In Britain, the tree is seldom planted for any other purpose than that of ornament, in which it is effective by adding to the variety of a collection, rather than to its positive beauty. The variegated variety is showy, and, if a mule could be procured with red flowers, by cross-fecundation with *A.* rùbrum, we should then have a singularly handsome little tree. Even a red tinge added to the autumnal foliage would be valuable. For the purpose of cross-fecundation, a plant of *A.* campéstre would require to be forced forward in a green-house, or a plant of *A.* rùbrum retarded in an ice-house, as the two species flower at different periods.

Soil, Situation, &c. A dry soil suits this species best, and an open situation; but, to attain a timber-like size, it requires a deep free soil, and a situation sheltered by other trees. So circumstanced, it attains the height of 30 ft. or 40 ft., both in France and England, as may be seen in Eastwell Park, in Kent, and at Caversham Park, near Reading. In the nurseries, plants of this species are raised from seeds, most of which often remain eighteen months in the ground before they come up, though a few come up the first spring. The varieties are propagated by layers.

Casualties. The mistletoe is sometimes found growing on this species.

Statistics. In the environs of London, at Kew, *A.* campéstre, 50 years planted, is 26 ft. high; in

Dorsetshire, at Melbury Park, 100 years planted, and 38 ft. high, the trunk 2 ft. 9 in. in diameter, and the head 37 ft. in diameter, growing in stony clay; in Essex, at Braystock, 80 years planted, and 50 ft. high; in Surrey, at Farnham Castle, 50 years planted, 30 ft. high; in Suffolk, at Finboborough Hall, 70 years planted, and 40 ft. high. In Denbighshire, at Llanbede, 20 years planted, 34 ft. high. In Scotland, near Edinburgh, at Hopeton House, 46 ft. high; in Argyllshire, at Hafton, 36 years planted, and 36 ft. high; in Clackmannanshire, in the garden of the Dollar Institution, 12 years planted, and 20 ft. high; in Forfarshire, at Airlie Castle, 10 years planted, and 14 ft. high; in Stirlingshire, at Blairlogie, 302 years old, and 55 ft. high, the diameter of the trunk 4 ft., and of the head 45 ft., the soil, a light loam on dry gravel, and the situation exposed. In France, in the Botanic Garden at Toulon, 48 years planted, and 45 ft. high. In Saxony, at Wörlitz, 65 years planted, and 40 ft. high; in Austria, in the University Botanic Garden at Vienna, 20 years planted, and 25 ft. high; at Laxenburg, 60 years planted, and 45 ft. high; at Kopenzel, 45 years planted, and 30 ft. high; at Hädersdorf, 40 years planted, and 21 ft. high. In Prussia, at Sans Souci, 40 years planted, and 35 ft. high. In Bavaria, at Munich, 24 years planted, and 20 ft. high.

Commercial Statistics. Plants, in London, seedlings 10*s*. a 1000, of a larger size 20*s*. a 1000; the variegated-leaved variety 2*s*. 6*d*. a plant. At Bollwyller, the broad-leaved variegated subvariety, 1 franc 50 cents a plant; at New York, ?.

‡ 19. *A.* CRE′TICUM *L.* The Cretan Maple.

Identification. Lin. Spec., 1497.; Dec. Prod., 1. p. 594.; Don's Mill, 1. p. 649.
Synonymes. *A.* heterophȳllum *Willd. En.*; *A.* sempervìrens *L. Mant.*; E′rable de Crète, *Fr.*; Cretischer Ahorn, *Ger.*
Engravings. Tratt. Arch., 1. No. 19.; Duh. Arb., 1. p. 28. t. 10. f. 9.; Alp. Exot., 9. t. 8.; Pocock Orient., 197. t. 85.; Schmidt Arb., t. 15.; Krause, t. 120.; our *fig.* 132. in p. 459.; and the plate of this species in our Second Volume.

Spec. Char., &c. Leaves permanent, cuneated at the base, acutely 3-lobed at the top. Lobes entire, or toothleted; lateral ones shortest. Corymbs few-flowered, erect. Fruit smooth, with the wings hardly diverging. (*Don's Mill.*, i. p. 649.) A diminutive slow-growing sub-evergreen tree; native of Candia, and of other islands in the Grecian Archipelago. Introduced in 1752.

Description, &c. This species is seldom seen in British collections, and then more frequently as a shrub than as a tree; but it is readily known from all the others, and from *A.* monspessulànum, to which it makes the nearest approach, by its being nearly evergreen; and by the great variety of the forms of its leaves; and, according to the specific character, by the flowers being erect; those of *A.* monspessulànum being pendulous. In young plants, the leaves are seldom much lobed; and this, we suppose, has given rise to the species or variety known in gardens as *A.* heterophýllum, which appears to be only *A.* créticum in a young state. We are only aware of three plants of this species which have assumed the character of trees in the neighbourhood of London; viz. that at Syon, figured in our Second Volume, which is 28 ft. high, flowers freely, and produces seeds almost every year; one in the Chelsea Botanic Garden, about 8 ft. high, which has stood there since the time of Miller; and a third, of equal age, which was in the Mile End Nursery, and which, in 1834, was 10 ft. high. This last tree has since been sold, and removed to the garden of the Rev. T. Williams, at Hendon, Middlesex. This species is generally propagated by layers; though it might, probably, be grafted on the Montpelier maple. Where a miniature arboretum is formed in a small garden, this species may be considered valuable, as exemplifying the order *A*ceràceæ, in a space not larger than what would be required for a herbaceous plant.

Statistics. The only specimens worth recording in Britain are those already referred to at Syon, Chelsea, and Hendon. The plants in the London Horticultural Society's Garden, and at Messrs. Loddiges's, are not above a foot and a half high. In France, in the Jardin des Plantes, a tree 130 years planted is 31 ft. high. In Saxony, at Wörlitz, one 55 years planted is 40 ft. high.

Commercial Statistics. Plants, in the London nurseries, cost 5*s*. each; at Bollwyller, where it is considered as synonymous with *A.* heterophýllum, 2 francs each; at New York, ?.

App. i. *Doubtful Species of* A′*cer.*

We have not been able to satisfy ourselves respecting the distinctness of *A.* O′palus and *A.* opulifòlium; and we are very much inclined to think that the sort which we have figured as *A.* barbàtum is a European species, and, consequently, not the *A.* barbàtum of Michaux. To us, it appears that the *A.*

barbàtum, of which a leaf is figured in the *Penny Cyclopædia*, and several in our *fig.* 125. p. 452., may possibly be only a variety of *A.* Pseùdo-*P*látanus, diminished in all its parts. *A.* coriàceum, which we consider as a synonyme of *A.* O'palus, and which, in the *Penny Cycl.*, is considered a synonyme of *A.* créticum, may be a more distinct sort than we think it is, from having seen only small plants of it. These small plants have leaves as nearly as possible of the same form as those of *A.* O'palus, exhibited in *fig.* 126. p. 453.; and, therefore, the *A.* coriàceum mentioned in the *Penny Cycl.* as a synonyme of *A.* créticum, must refer to a different plant from the specimen of *A.* coriàceum in Loddiges's arboretum. *A.* Lobèl*ii* Tenore, of which there is a tree, 20 ft. high, at Croome, in Worcestershire, certainly appears very distinct from *A. p*latanöìdes (of which we have set it down as a variety) in the foliage of the plants about 2 ft high in the London nurseries; but not so in the specimens which we have received from Croome. *A.* nìgrum, which we consider as a variety of *A.* sacchárinum, ought to be proved by raising plants from seeds, which can be procured from America at the same price as those of *A.* sacchárinum. It would not surprise us if *A. p*latanöìdes and *A.* sacchárinum were ultimately to turn out to be races of one and the same species. Under the name of *A.* hýbridum, it is probable that there is more than one variety or species in cultivation. The *A.* hýbridum of Bosc, with coriaceous leaves, profoundly trifid, seems to be different from the *A.* hýbridum of Baudrillart, which he describes as intermediate between *A.* monspessulànum and *A.* tatáricum. In *Don's Miller*, there is *A.* obtusifòlium *Flor. Græc.*, t. 361., a native of Crete; and there is also *A.* obtusàtum *Kit.*, a native of Hungary: these may possibly be names applicable to one and the same species. *A.* lobàtum *Don's Miller*, i. p. 651., a native of Siberia, and said to have been introduced in 1820, is there designated an " extremely doubtful " species.

App. ii. *Anticipated Species of* A`*cer.*

All the species of this family are so interesting and ornamental, that it is desirable to procure additions to those already introduced into Britain, from every quarter of the globe, and by every resource which art supplies. It appears, from Don's *Miller* and Royle's *Illustrations*, that there are one or two European species, one from N. America, several from the Himalayas, and some from Japan, all likely to prove hardy, which are at present wanting in British collections. We shall give the names of these, in the hope of directing to them the attention of travellers, collectors, and patriotic amateurs.

‡ A. *ibéricum* Bieb., a tree 20 ft. high, native of Iberia, with greenish yellow flowers, and shining 3-lobed leaves, is described in Bieberstein's *Flora Taurico-Caucasica*, vol. ii. p. 447.; in Dec. *Prod.*, i. p. 594.; and in Don's *Mill.*, 1. p. 649.

‡ A. *obtusifòlium* Sibth. and Smith, a native of Crete, a tree 15 ft. high, with 3-lobed crenated leaves, is described in the *Flora Græca*, and in Don's *Mill.*; in the latter work it is mentioned as being of doubtful introduction.

‡ A. *parvifòlium* Tausch is described as having 5-lobed leaves, and nodding corymbs of flowers. It is a native of the south of Europe, growing to the height of 20 ft., by some confounded with *A.* créticum, and by others with *A.* monspessulànum.

‡ A. *glàbrum* Torrey has smooth roundish 5-lobed leaves, and is found in North America, on the Rocky Mountains. Very little appears to be known of this species.

‡ A. *lævigàtum* Wall. has oblong, acuminated, smooth, shining, leaves, and white flowers. It is a native of Nepal, on high mountains, where it forms a tree 40 ft. high. It is described and figured by Dr. Wallich in his *Plant. Asiat. rar.*, 2. p. 3. t. 104.

‡ A. *acuminàtum* Wall., a tree of Nepal, with leaves varying from 3-lobed to 5-lobed, is described in Don's *Prod. Fl. Nep.*, p. 249.

‡ A. *cultràtum* Wall., a tree of Himalaya, with cordate, 7-lobed, acuminated leaves, is described by Wallich in his *Plantæ Asiaticæ rariores*, vol. ii. p. 4.

‡ A. *caudàtum* Wall., a tree from the highest regions of Nepal, with long pointed leaves, is described in the work last quoted, vol. ii. p. 4., and in Don's *Mill.*, i. p. 648.

‡ A. *villòsum* Wall., a tree 50 ft. high, native of the high alps of the Himalaya, near to perpetual snow, has cordate 5-lobed leaves, and fragant flowers. It is described in Dr. Wallich s work, and in Don's *Mill.*, as before quoted.

‡ A. *sterculiàceum* Wall., is a tree 50 ft. high, with a trunk 3 ft. in diameter. The leaves are very large, with long petioles, and the flowers are white. It is found in Nepal, on Mount Shiopore.

‡ A. *dissèctum* Thun. is a tree of Japan, with leaves 9—10-parted, and oblong acuminated lobes, with a red corolla. It is described by Thunberg in his *Flora Japonica*, p. 160.; in Dec. *Prod.*, i. p. 955.; and Don's *Mill.*, i. p. 650.

⚘ A. *japónicum* Thun., with roundish palmate leaves, is a Japan tree, 20 ft. high, with the bark of the branches, and the corollas purple, and the fruit woolly. It is described in Thunberg's *Flora Japonica*, p. 161.; in Dec. *Prod.*, i. p. 595.; and in Don's *Mill.*, i. p. 650.

⚘ A. *septenilobum* Thun., with smooth, acuminated, 7-lobed leaves, is a Japan tree, 40 ft. high, described by Thunberg, and, after him, by De Candolle and G. Don, as before quoted.

⚘ A. *píctum* Thun., with smooth, palmate, 7-lobed leaves, is a Japan tree, 30 ft. high, with ash-coloured branches, and leaves variegated with white. Described as above.

⚘ A. *trífidum* Thun., with undivided and trifid entire leaves, and twigs smooth and purplish, is a Japan tree, 20 ft. high, described in the works quoted.

⚘ A. *truncàtum*, described in Bunge's *List of Plants of the North of China*, noticed in p. 176.

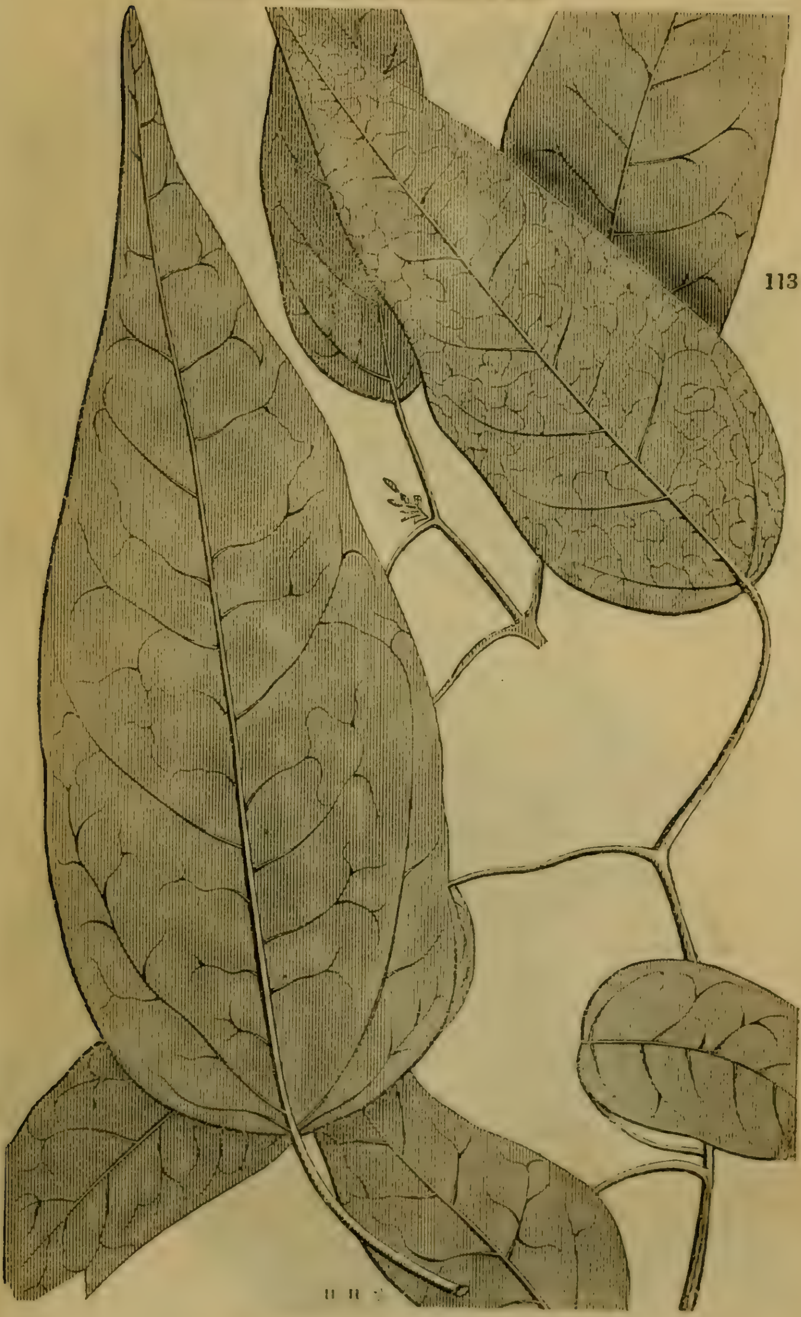
New Sorts from Cross-Fecundation. *A.* obtusàtum has very much the appearance of a hybrid between *A.* Pseùdo-*P*látanus and *A.* O′palus; but, whether this be the case or not, there seems no reason for doubting that cross-fecundation might be effected in this genus, as well as it is in various others. The objects ought to be, to get more colour into the flowers, and more red into the leaves. *A.* monspessulànum, with flowers as red as those of *A.* rùbrum, would be a fine variety. Possibly some of the species might be fecundated by some species of the genus *Negúndo*, which would lead to great changes in the leaves. As a number of the species of *A*`cer do not flower and perfect seeds, till they become considerable trees, it would be desirable, when experiments are to be made by cross-fecundation, and the person wishing to try these experiments possesses only young trees, to graft them with scions from trees which already flower and fruit. In collecting species for this purpose, care must be taken, either to procure plants producing hermaphrodite flowers, or plants having male and female flowers on the same tree; unless, indeed, advantage is proposed to be taken of the circumstance of the tree being only of one sex, to fecundate its flowers, if female, or pistilliferous, with the male flowers of another species; or, if staminiferous, to fecundate with them the female flowers of some other kind. We are strongly inclined to believe that some of what are now considered aboriginal species of *A*`cer are only the result of cross-fecundation, produced by accident; and hence we anticipate a number of new forms, when the attention of cultivators is powerfully directed to this object. *Negúndo f*raxinifòlium will, in all probability, fecundate, and be fecundated by, acers of different kinds; and this alone would produce something which would amply repay the curious cultivator. The tree produces flowers at an early age; and, as there are in almost every part of the country abundance of trees of *A*`cer campéstris, and *A.* Pseudo-*P*látanus, which flower every year, we would recommend a trial to be made between these sorts without delay. Success may not attend the first trial, but the object ought to be persisted in till some result be obtained. *A.* créticum, *A.* monspessulànum, and *A.* campéstre will, doubtless, fertilise together; because, in foliage, in mode of growth, in time of flowering, and in the form of the fruit, they are very much alike; and something might be done with them with very little trouble.

Additional Sorts from accidental Forms of Growth. The eagle's claw maple is a well known and very curious variety. Whenever any appearance of the same kind is observed in any of the other species, it ought to be continued by grafting. By carefully looking out for sports from the average forms, we shall probably, at some future day, have weeping maples, as well as the weeping ash; fastigiate maples, like the Lombardy poplar; and purple-leaved kinds, like the purple-leaved beech or common hazel. Though scarcely any of the variegated maples now known can be considered as very handsome, yet a new and beautiful variety of them may one day be procured.

App. iii. *Half-hardy Species of A`cer.*

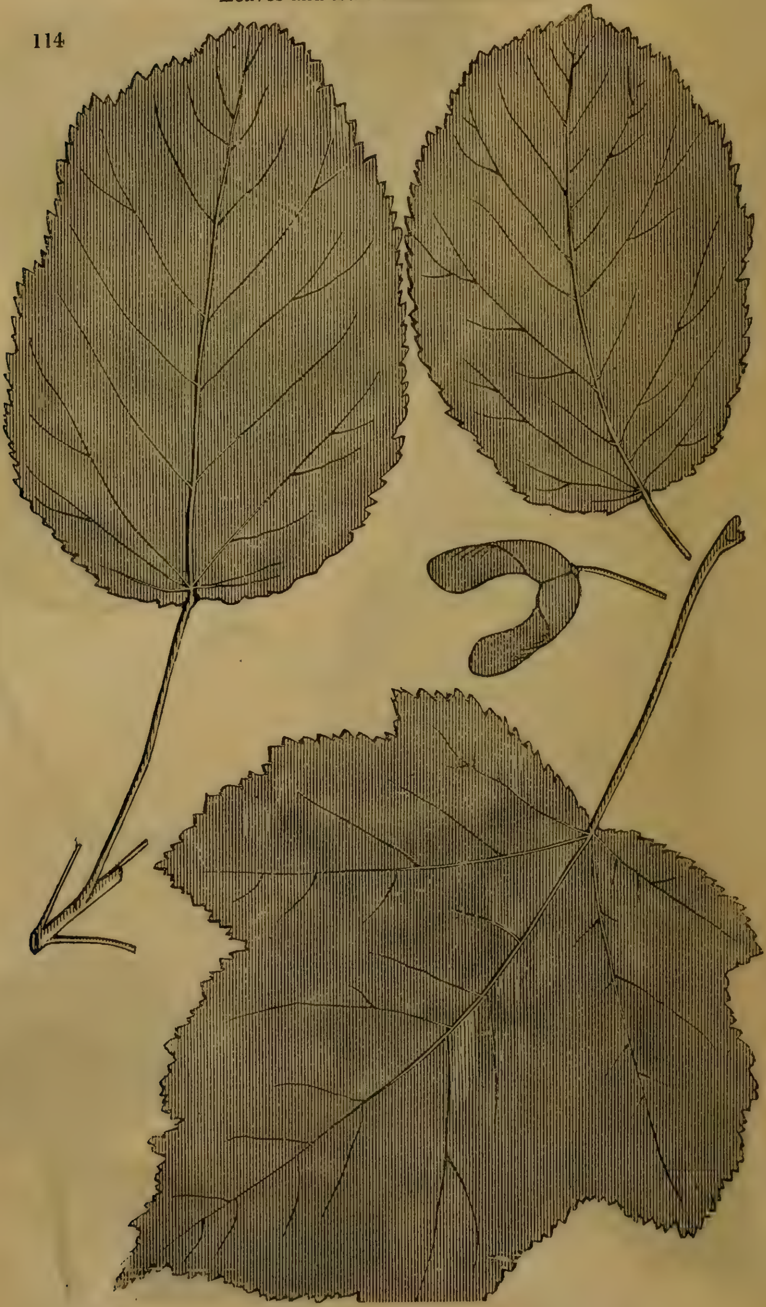
A. *palmàtum* Thun., described p.422., is, in all probability, only half-hardy; or, at all events, it is safe to treat this, and the other Japan species, and also those from Nepal, when once they are procured, as half-hardy, when in their young state. *A.* oblóngum, described in p. 405. according to Mr. Royle, descends to the lowest level of all the species found in Nepal, and is, therefore, probably the tenderest of those from that part of the world.

A'cer oblóngum. The oblong-*leaved* Maple.
Leaves of the natural size.



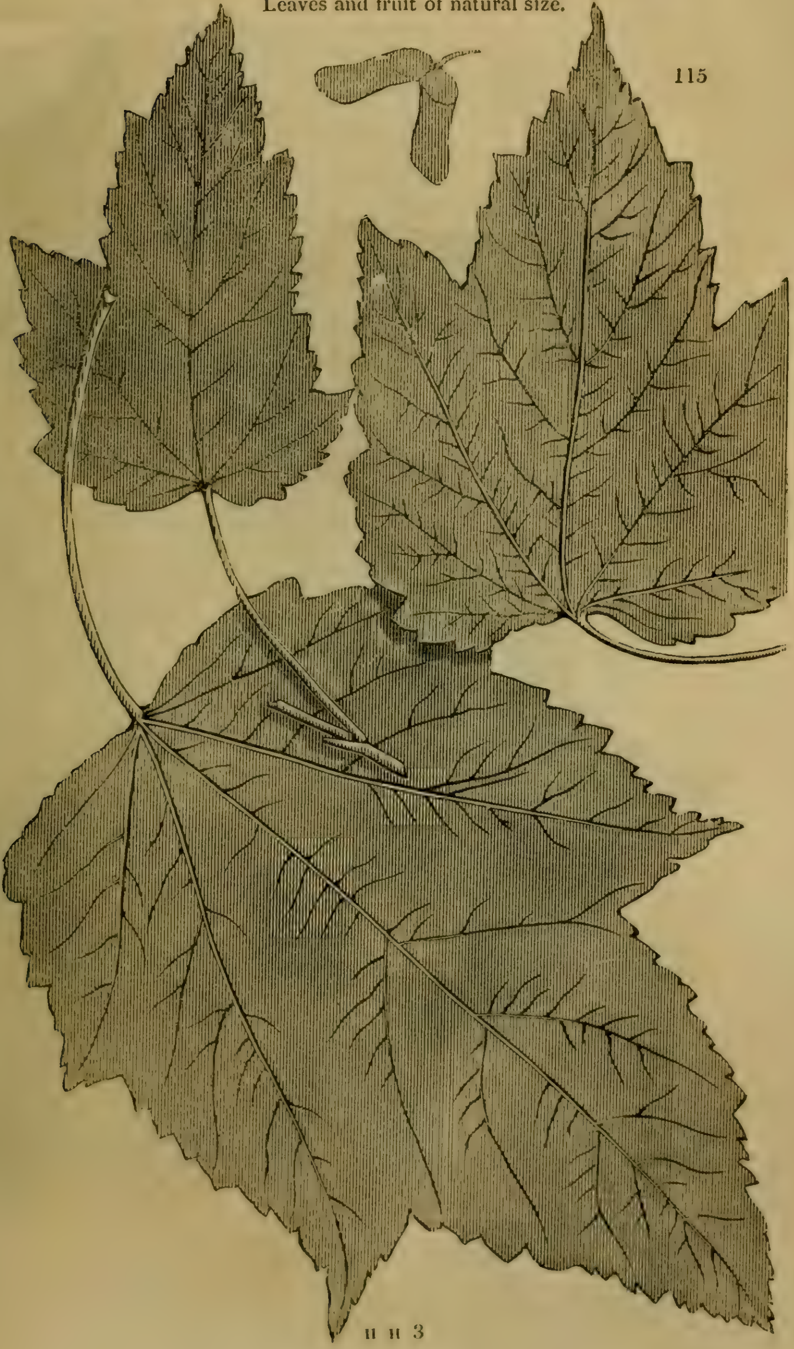
113

114

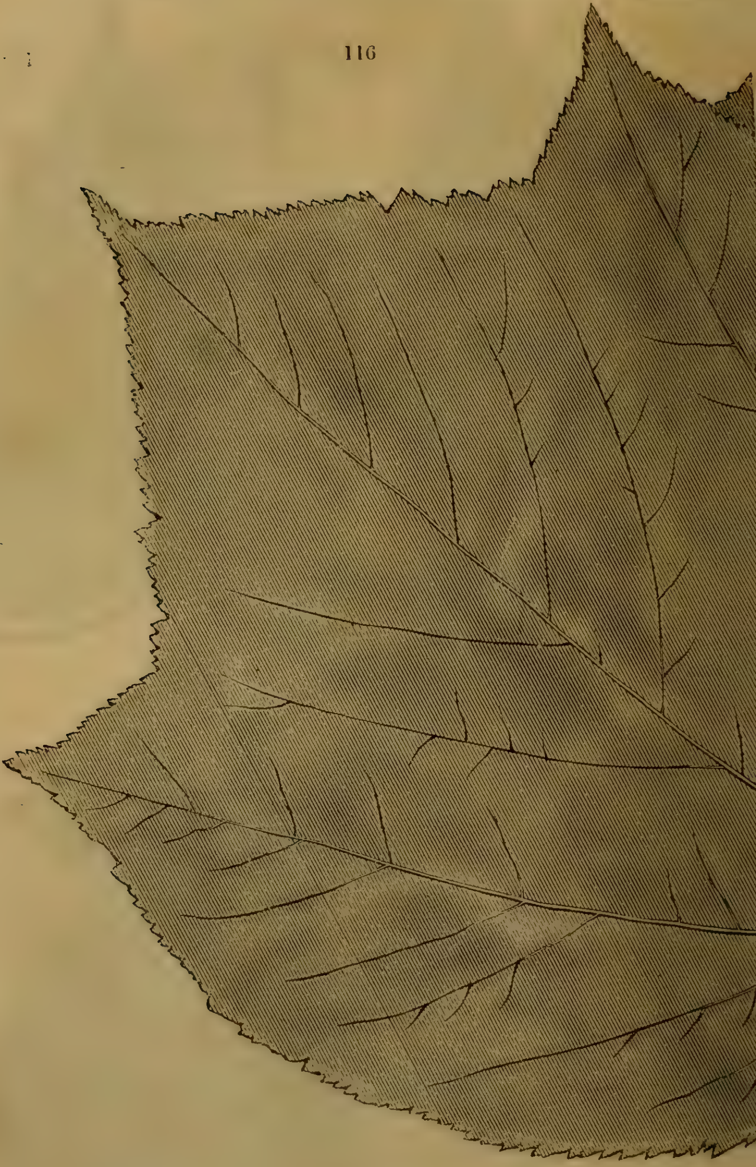


A'*cer tatáricum.* The Tartarian, *or entire-leaved,* Maple.
Leaves and fruit of the natural size.

A'cer spicàtum. The spike-*flowered, or mountain,* Maple.
Leaves and fruit of natural size.



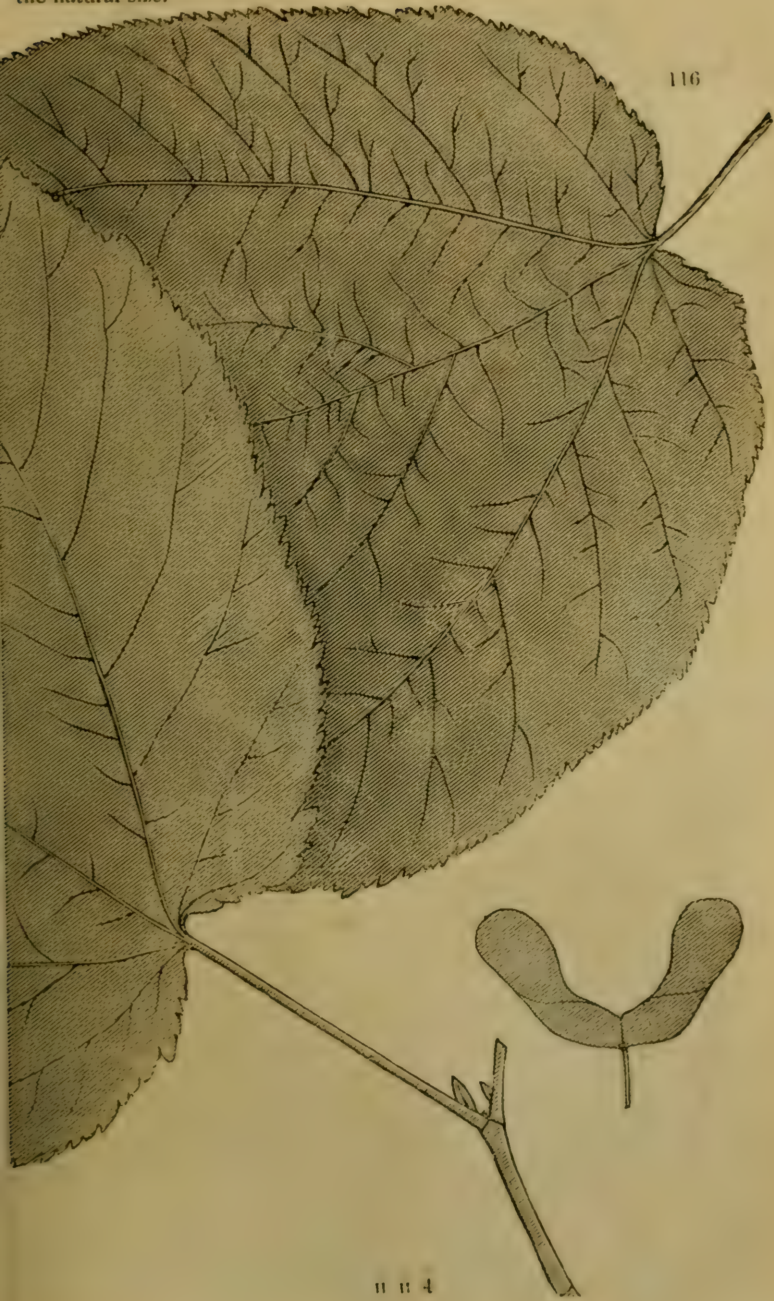
116



A'cer striàtum. The striped-

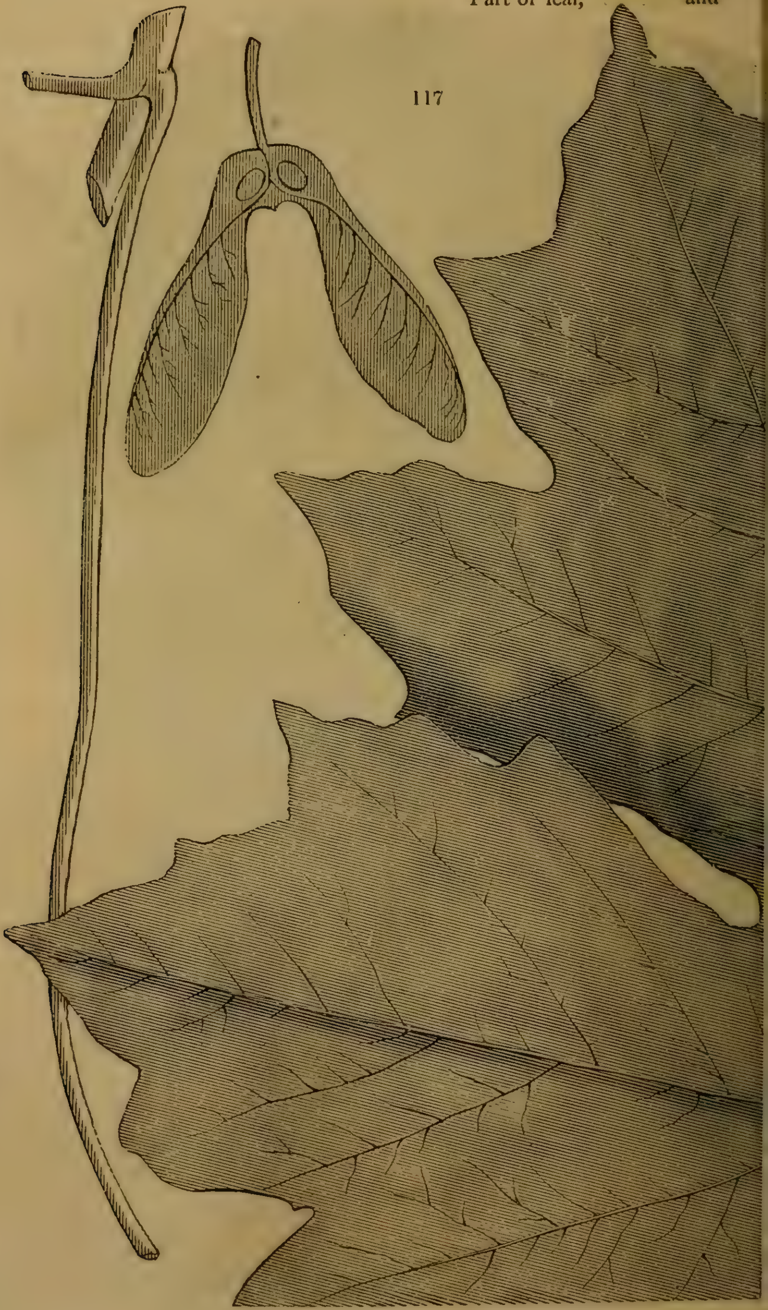
Leaves of

bark, or Pennsylvanian, Maple.
the natural size.



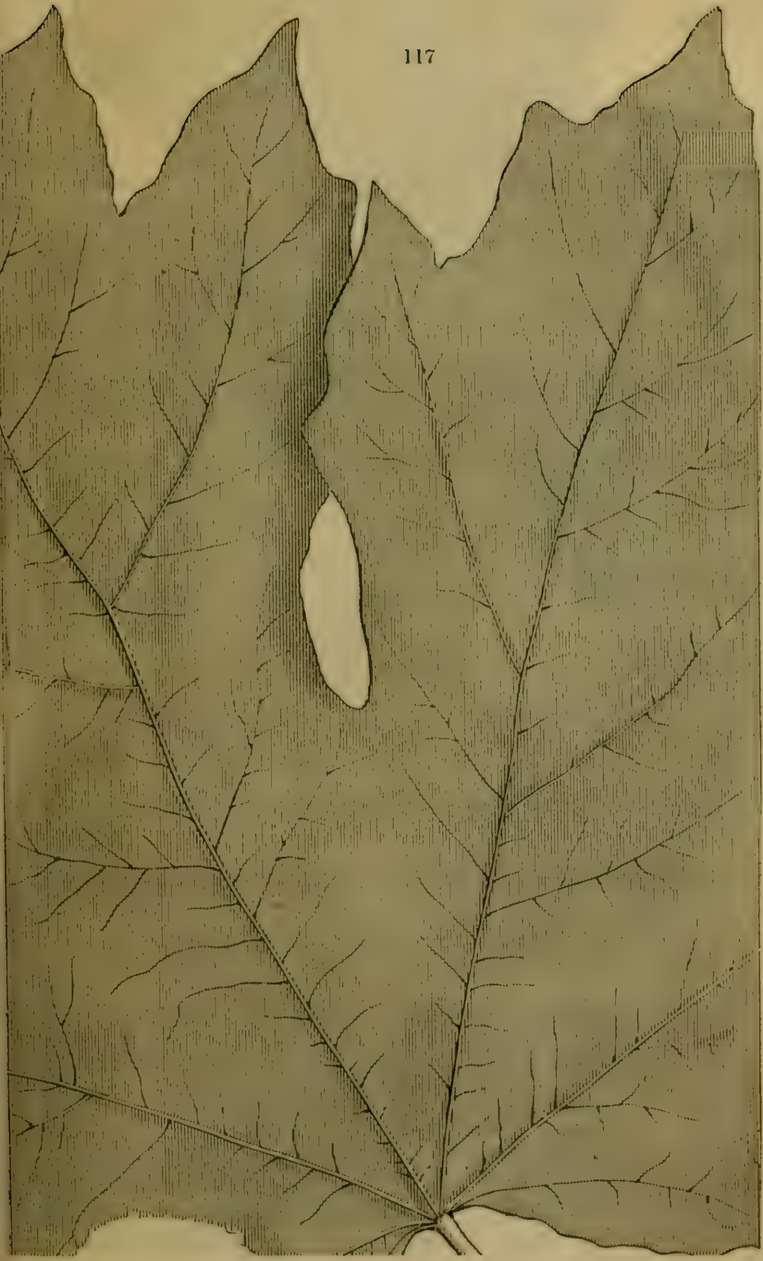
A'*cer macrophýllum.* The
Part of leaf, and

117



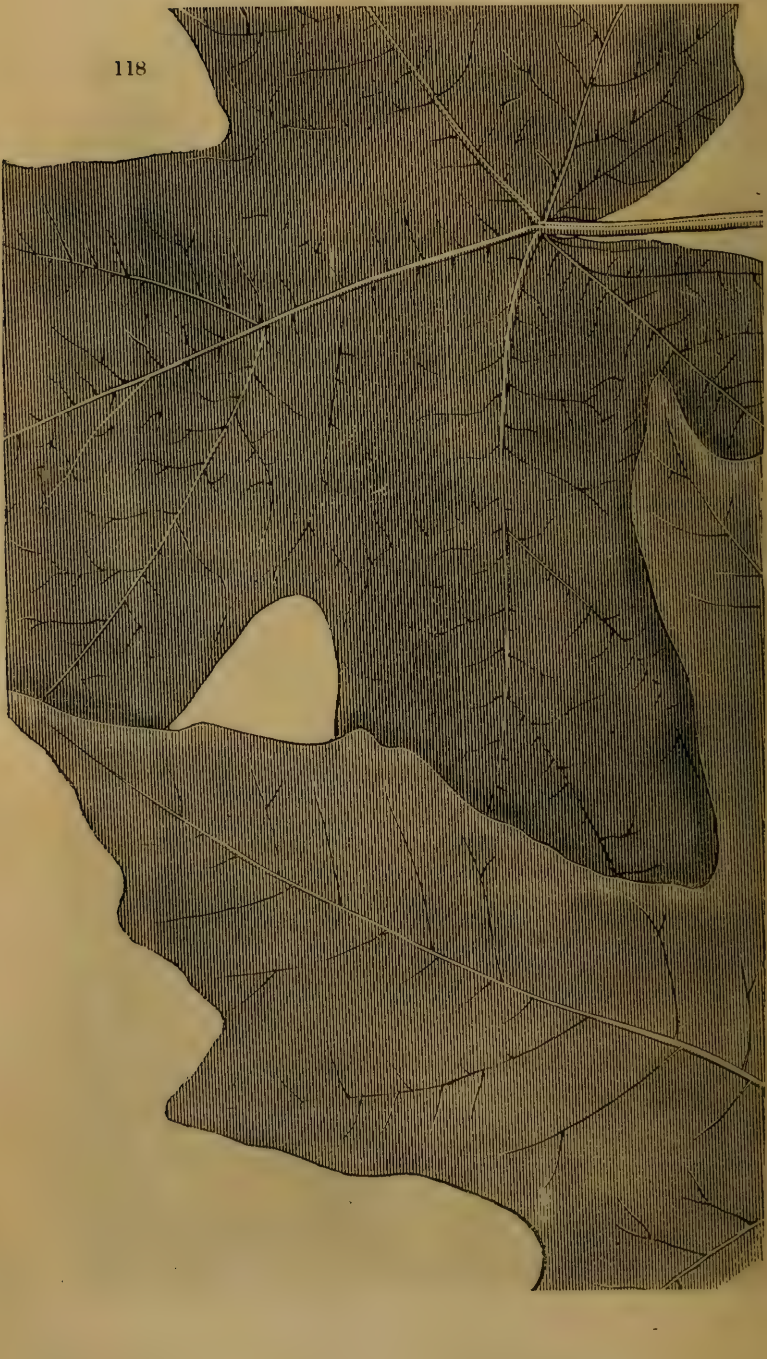
arge-leaved Maple.
ruit, of the natural size.

117



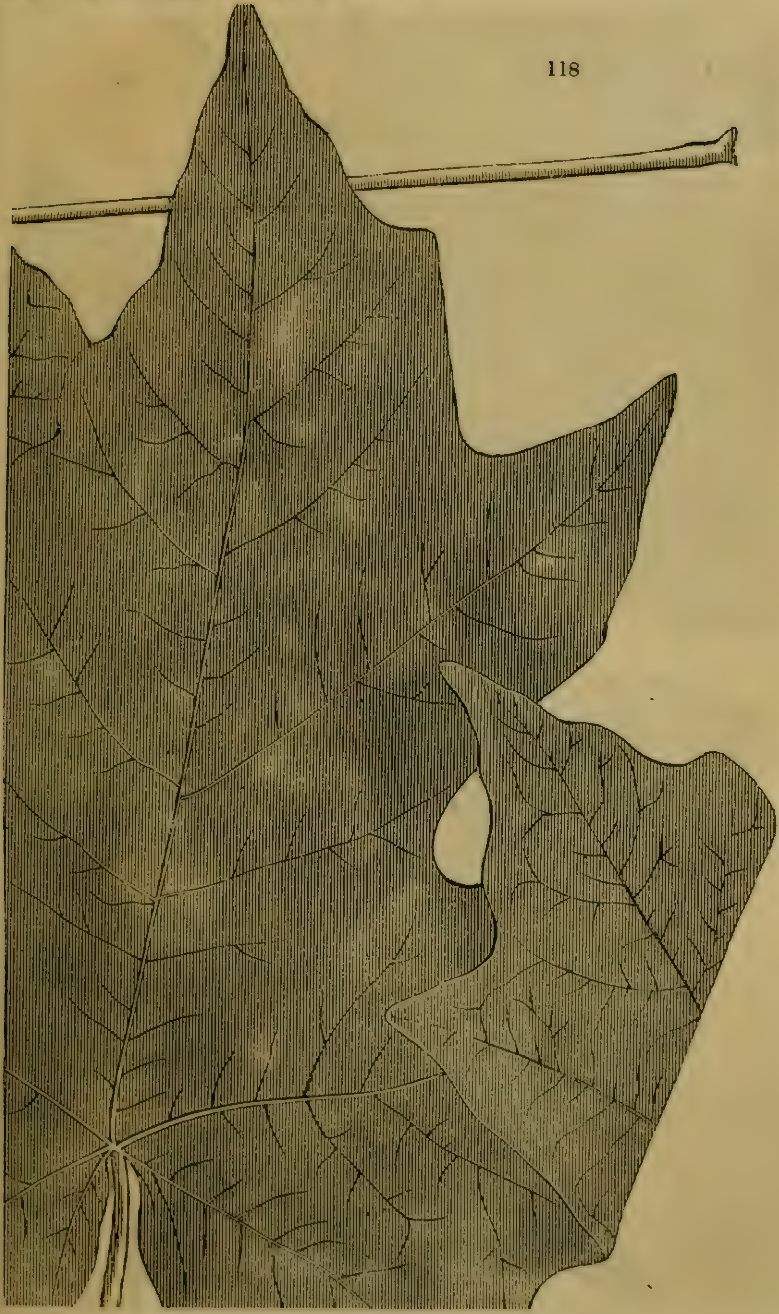
A'cer macrophýllum. The Smaller leaves, also of the natural size, to

118



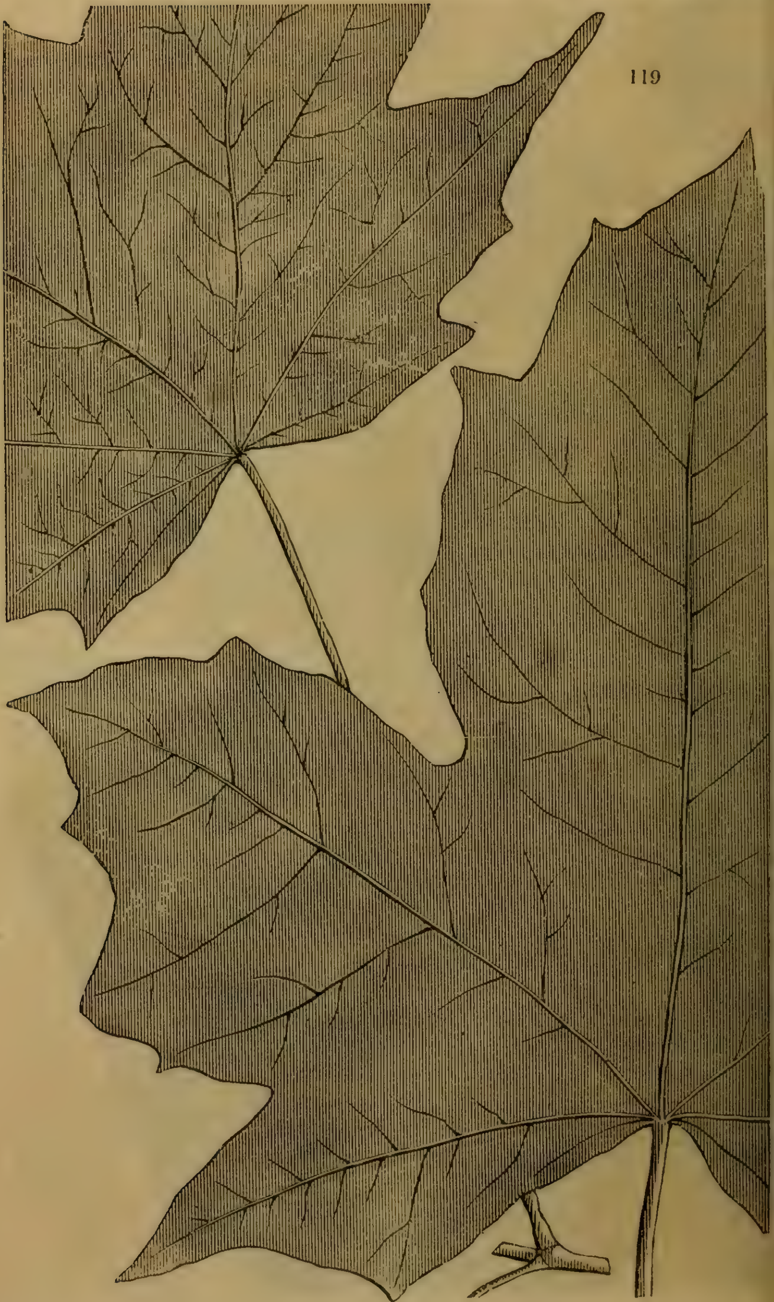
large-leaved Maple.
show how much they vary on the same tree.

118



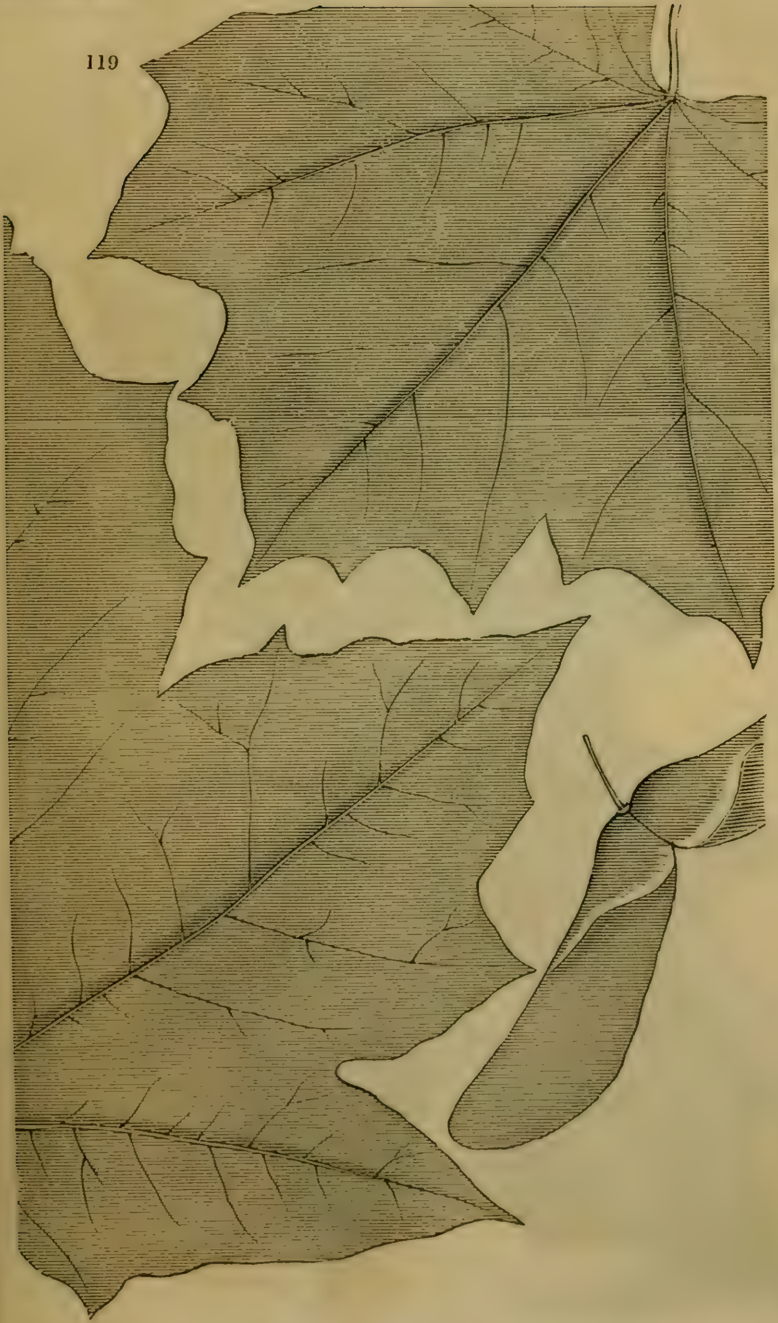
A`cer *platanöides.* The Platanus-
Leaves and fruit of

119



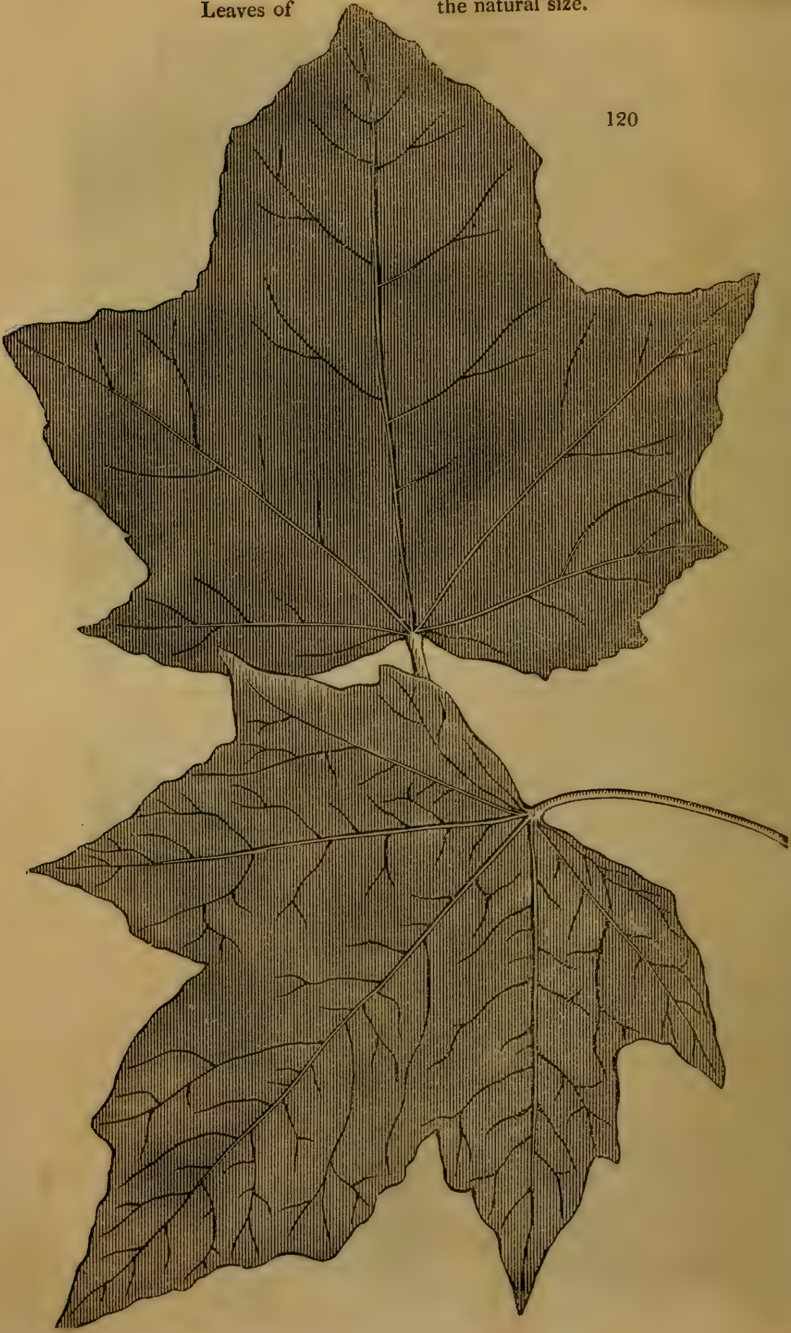
like, *or Norway,* Maple.
the natural size.

119

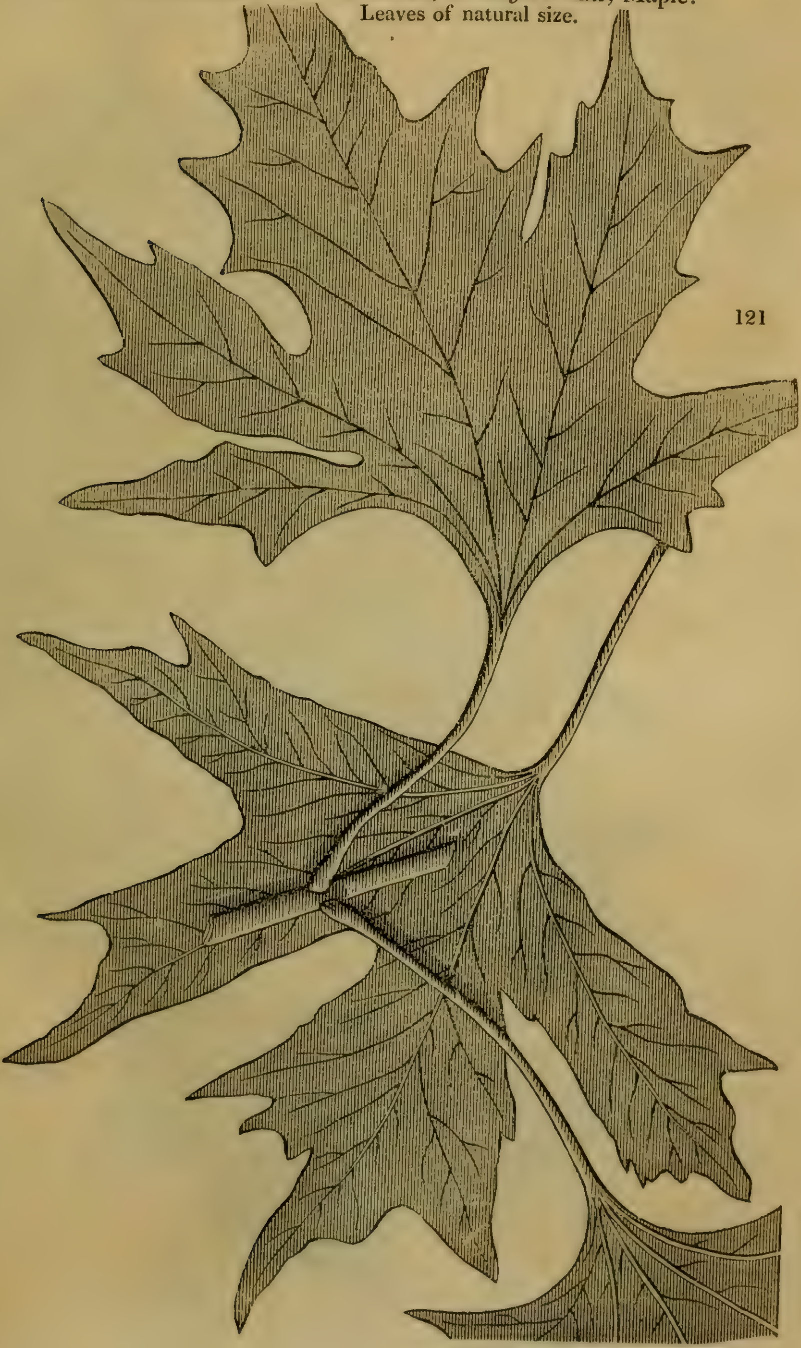


A'*cer Lobèl*ii. L'Obel's Maple.
Leaves of the natural size.

120



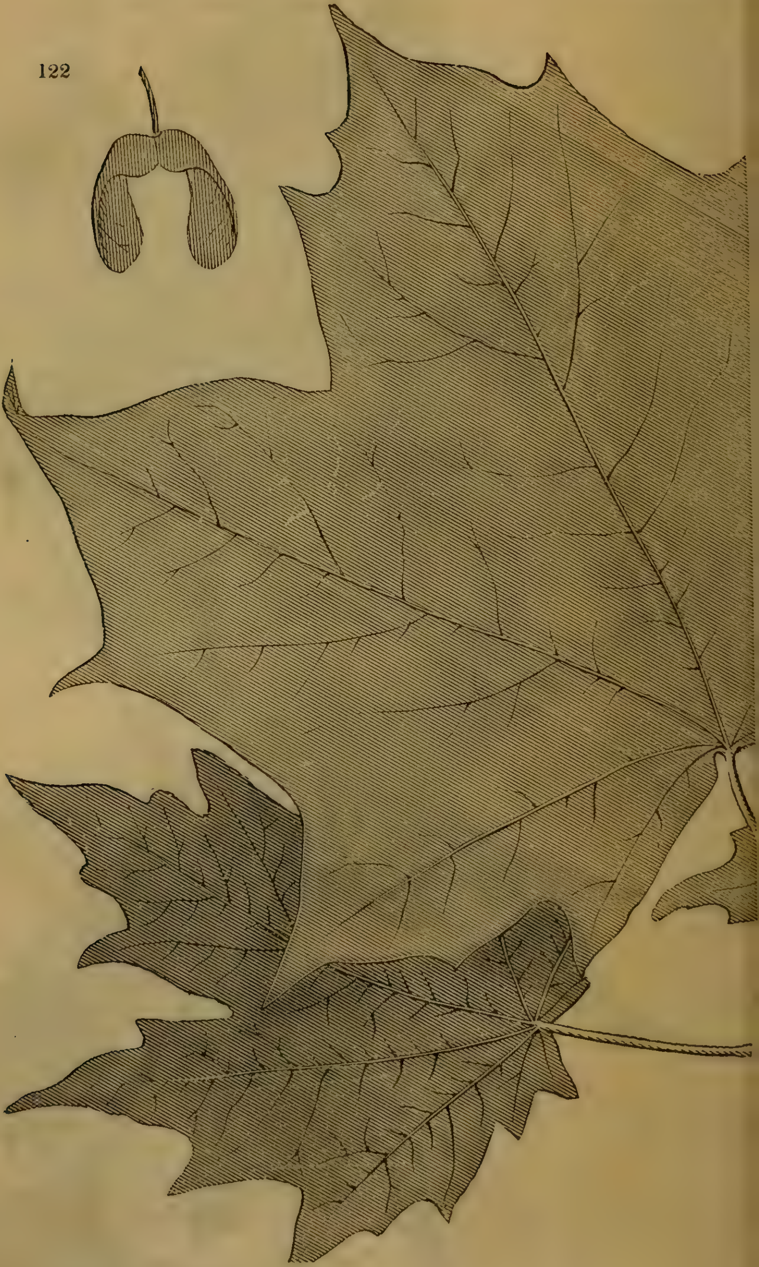
A'cer platanöìdes laciniàtum.
The cut-*leaved* Platanus-like, *or Eagle's claw*, Maple.
Leaves of natural size.

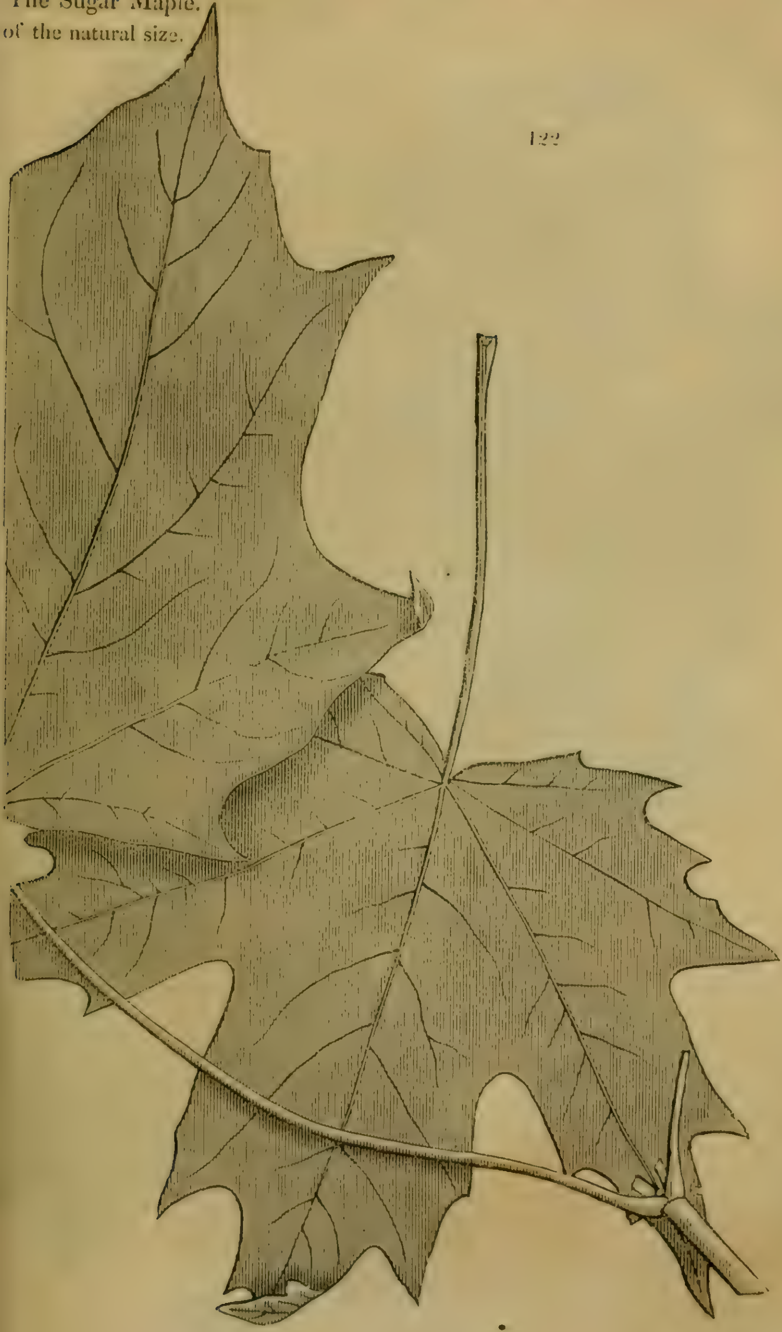


121

A`*cer sacchárinum.*
The leaves and fruit

122



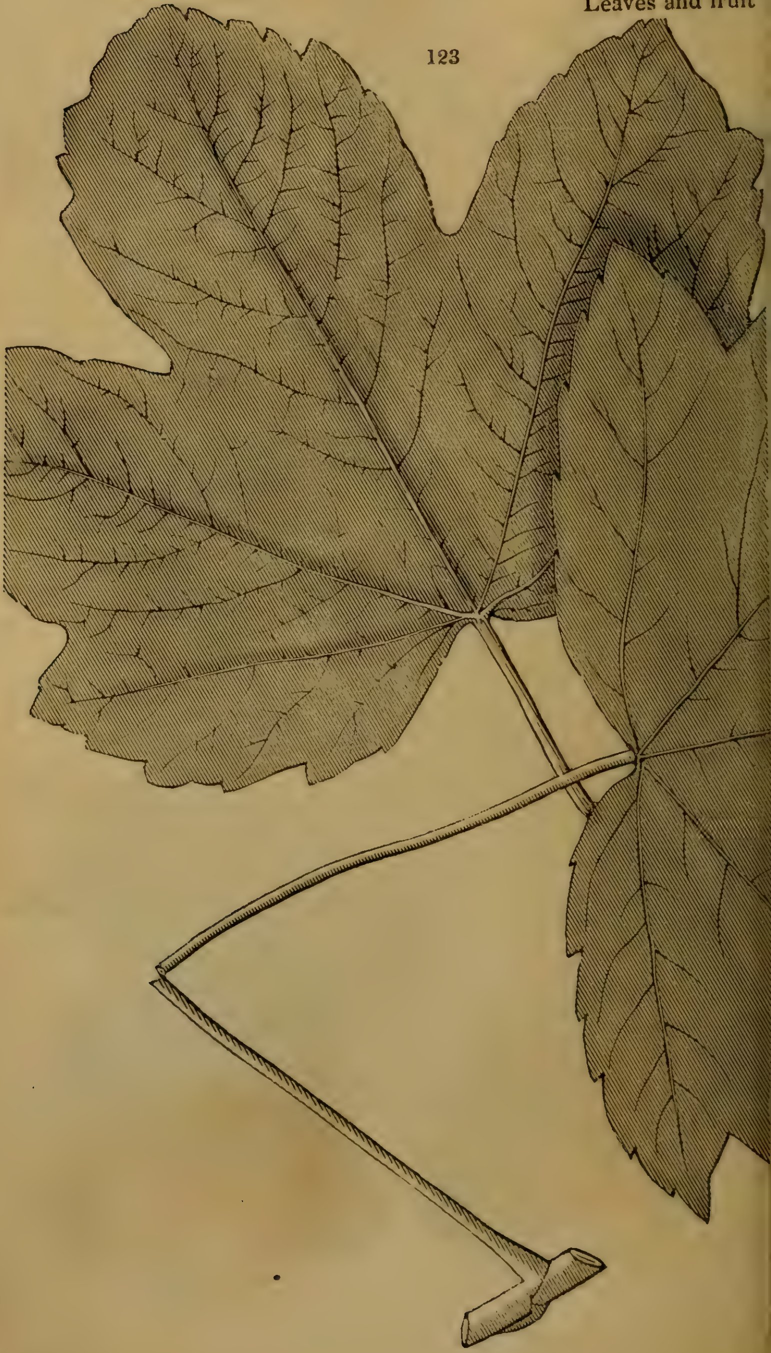


122

The Sugar Maple, of the natural size.

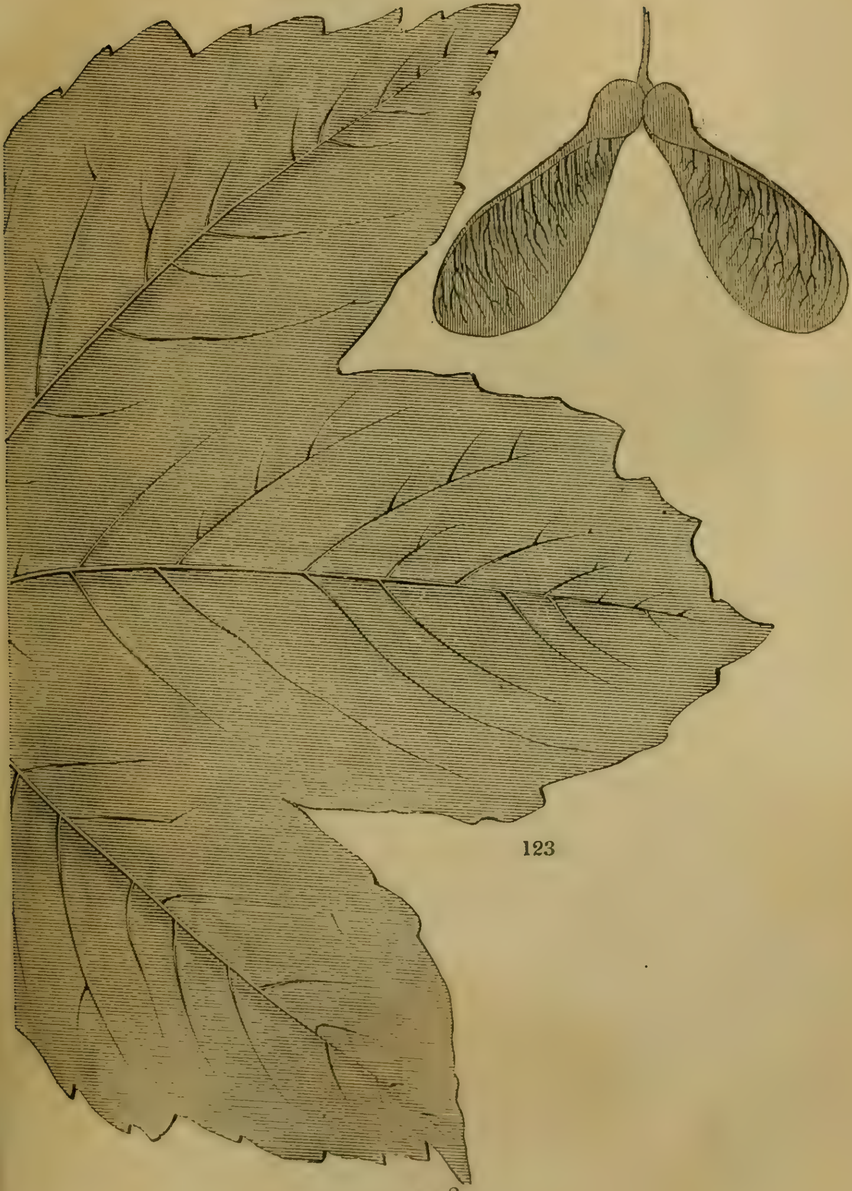
A'cer Pseùdo-Plátanus. The
Leaves and fruit

123



False Plane, *or Sycamore,* Maple.

of the natural size.

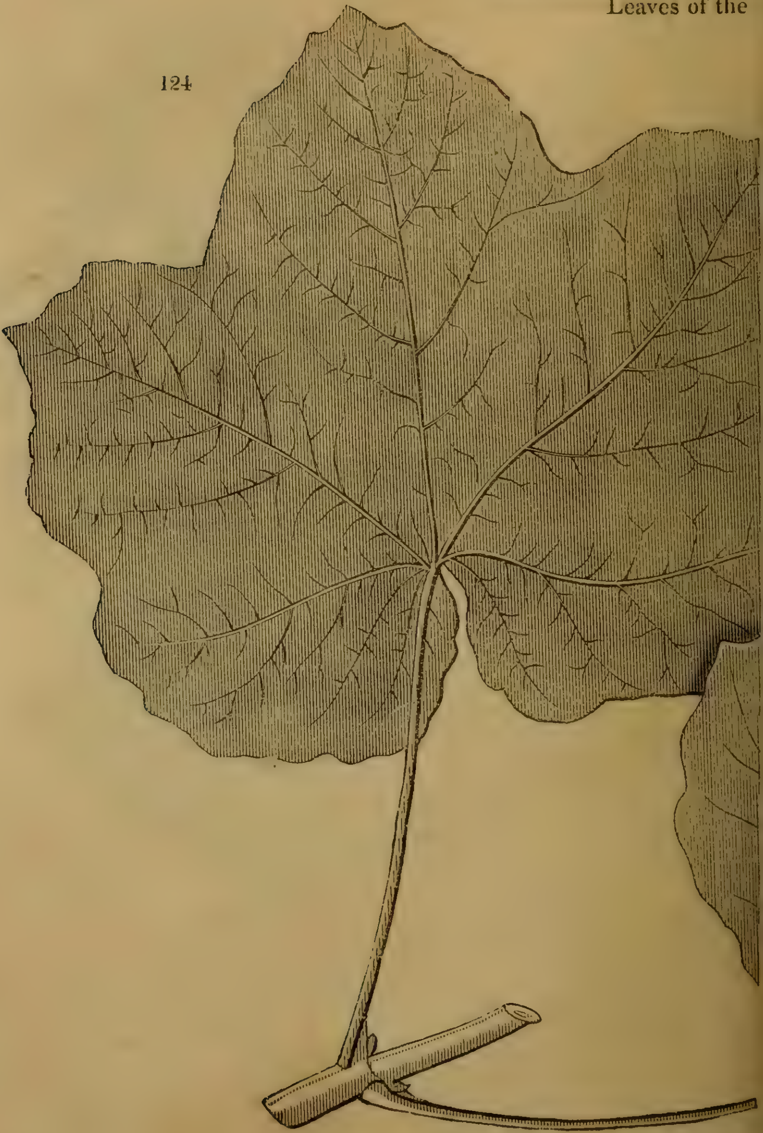


123

A'cer obtusàtum. The obtuse-

Leaves of the

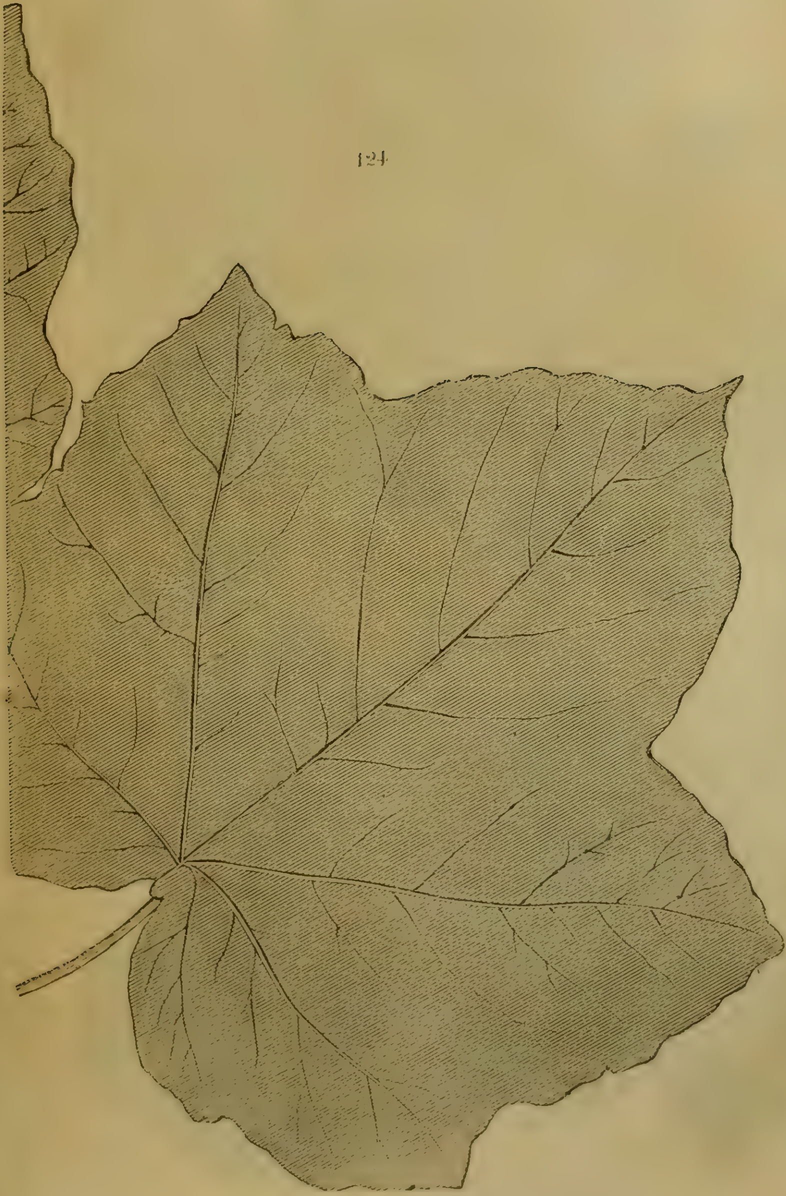
124



lobed-leaved, or Neapolitan, Maple.

natural size.

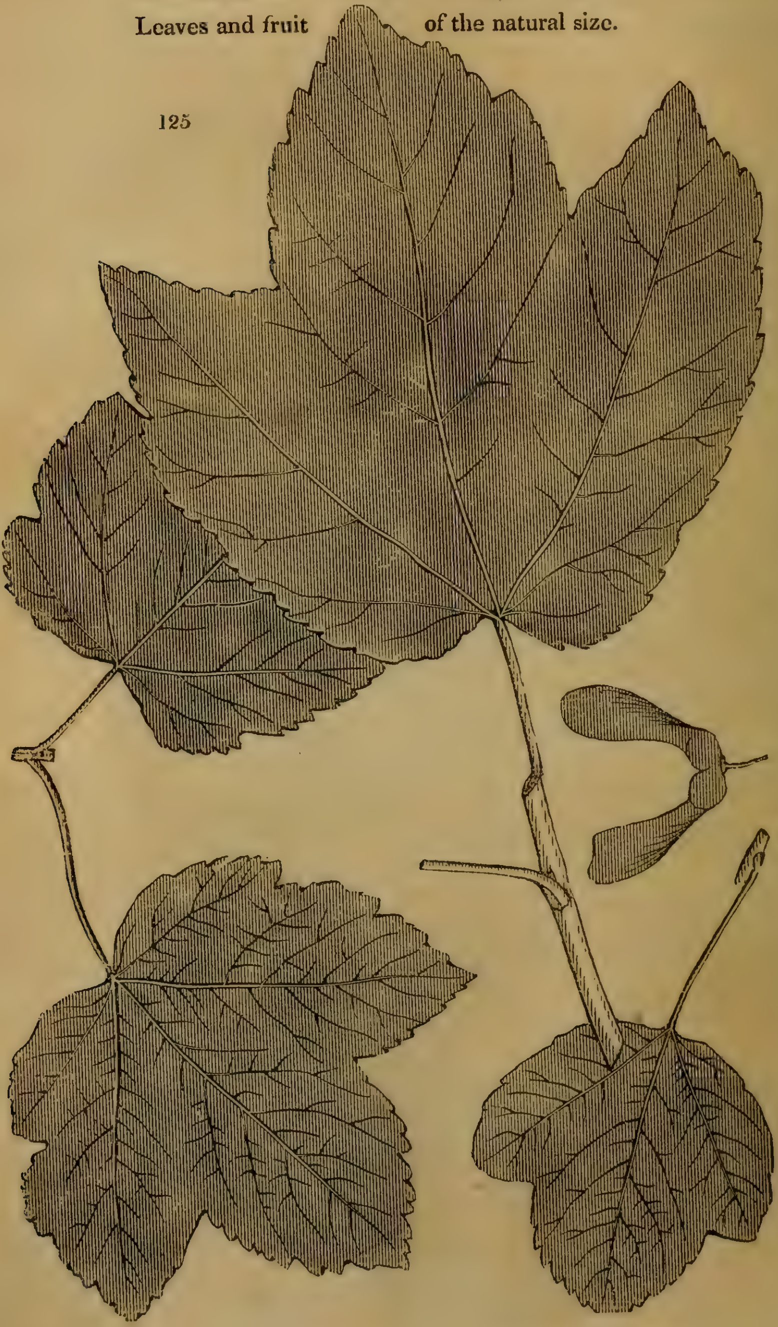
124



113

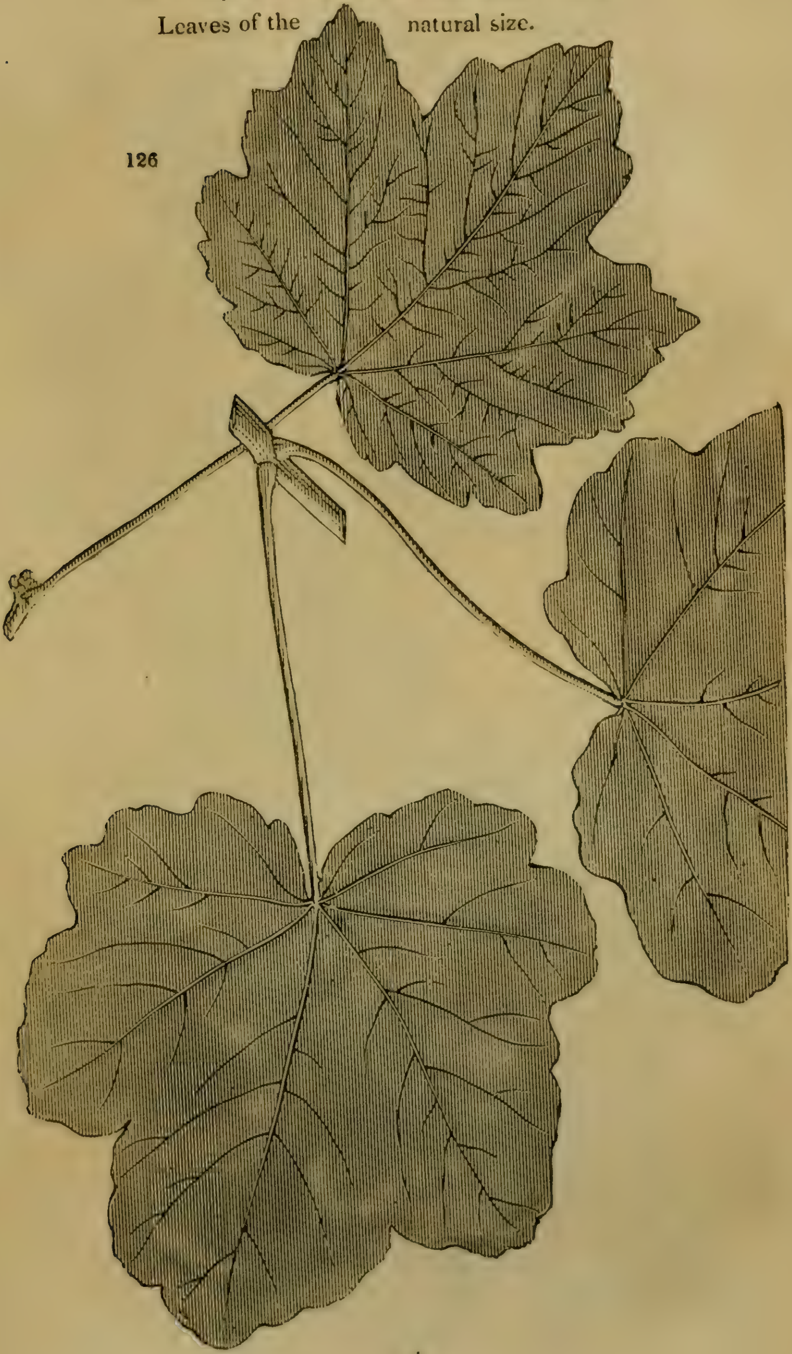
A`*cer barbàtum.* The bearded-*calyxed* Maple.
Leaves and fruit of the natural size.

125



A'cer O'palus. The Opal, *or Italian,* Maple.
Leaves of the natural size.

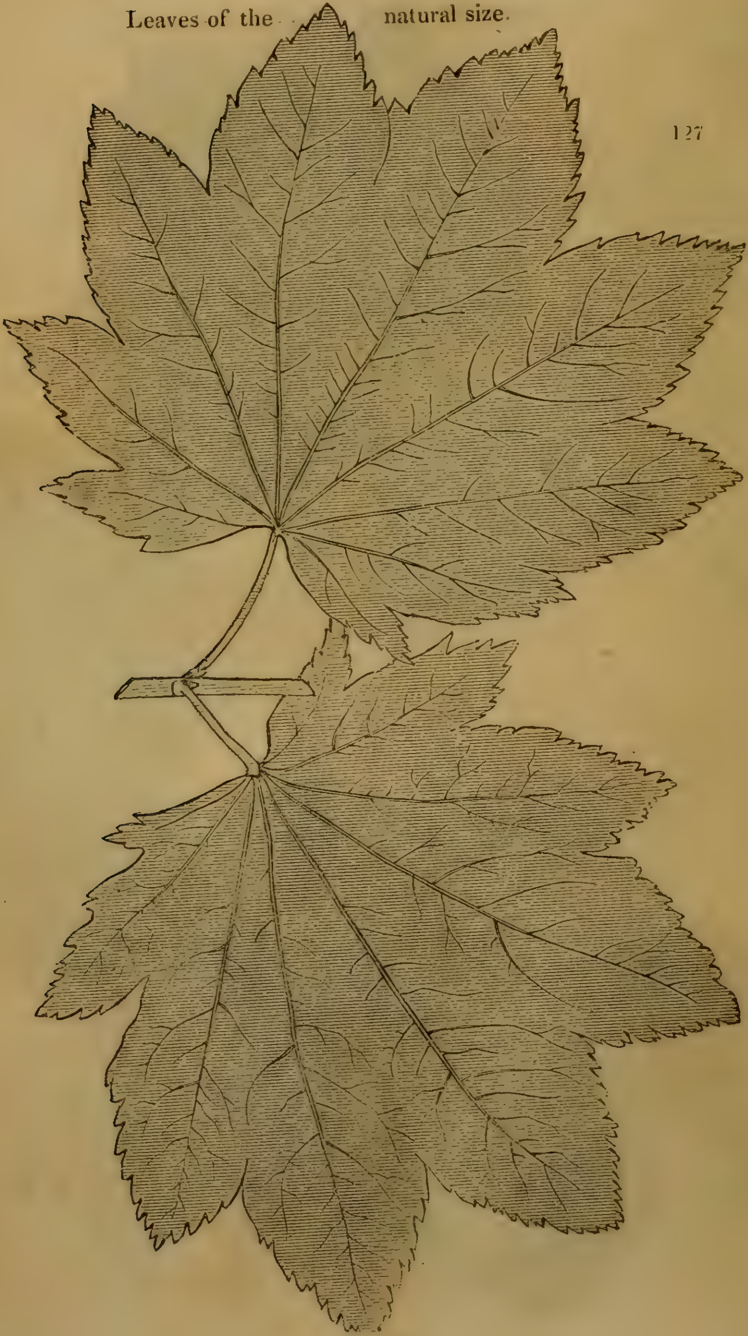
126



A`cer *circinàtum.* The round-*leaved* Maple.

Leaves of the natural size.

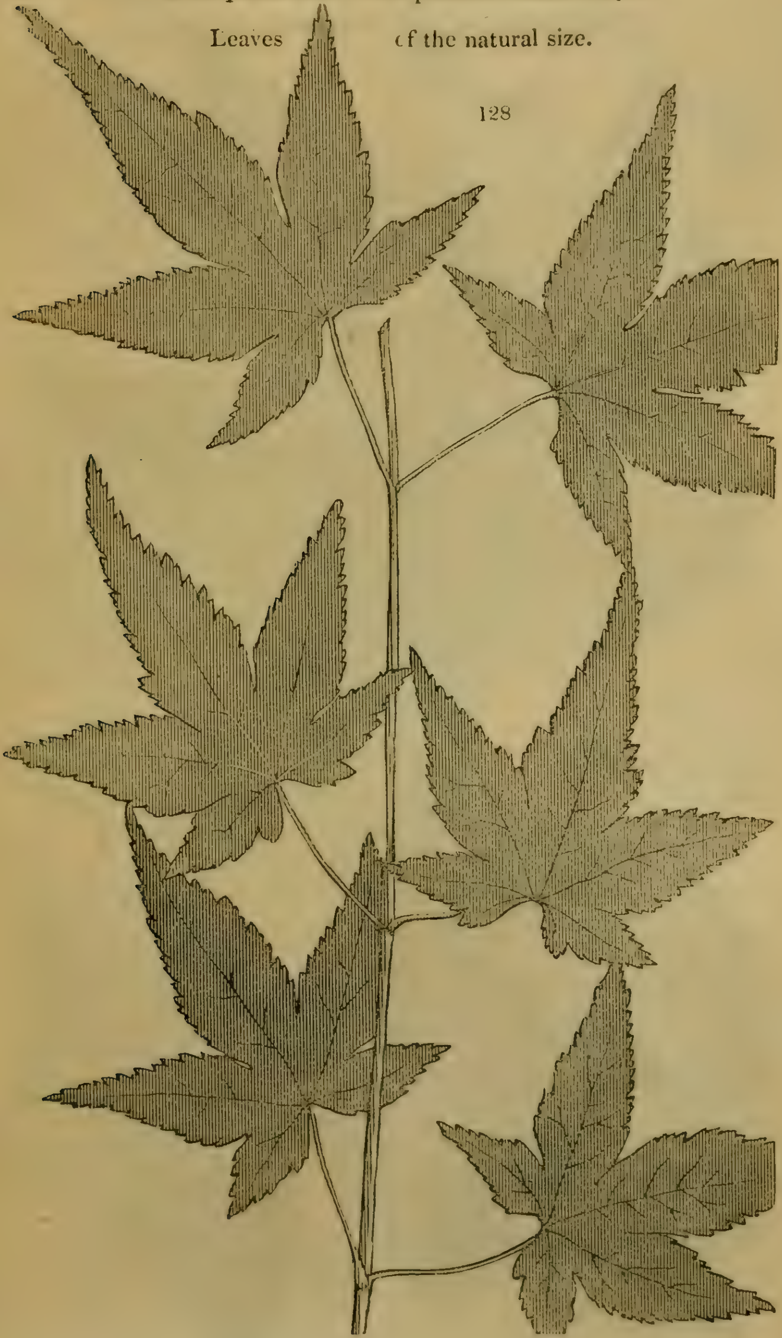
127



A`*cer palmàtum.* The palmate-*leaved* Maple.

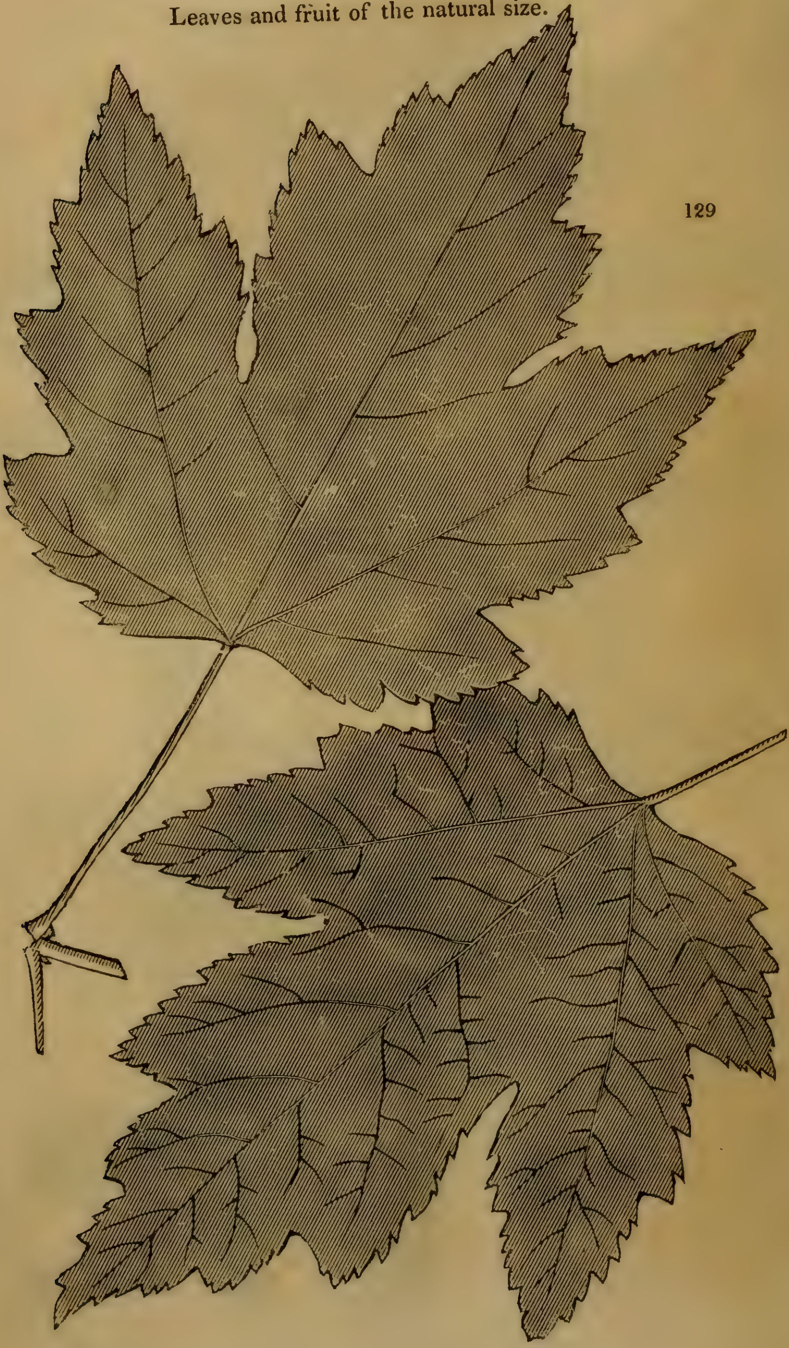
Leaves of the natural size.

128



A'*cer eriocárpum.* The woolly-fruited Maple.

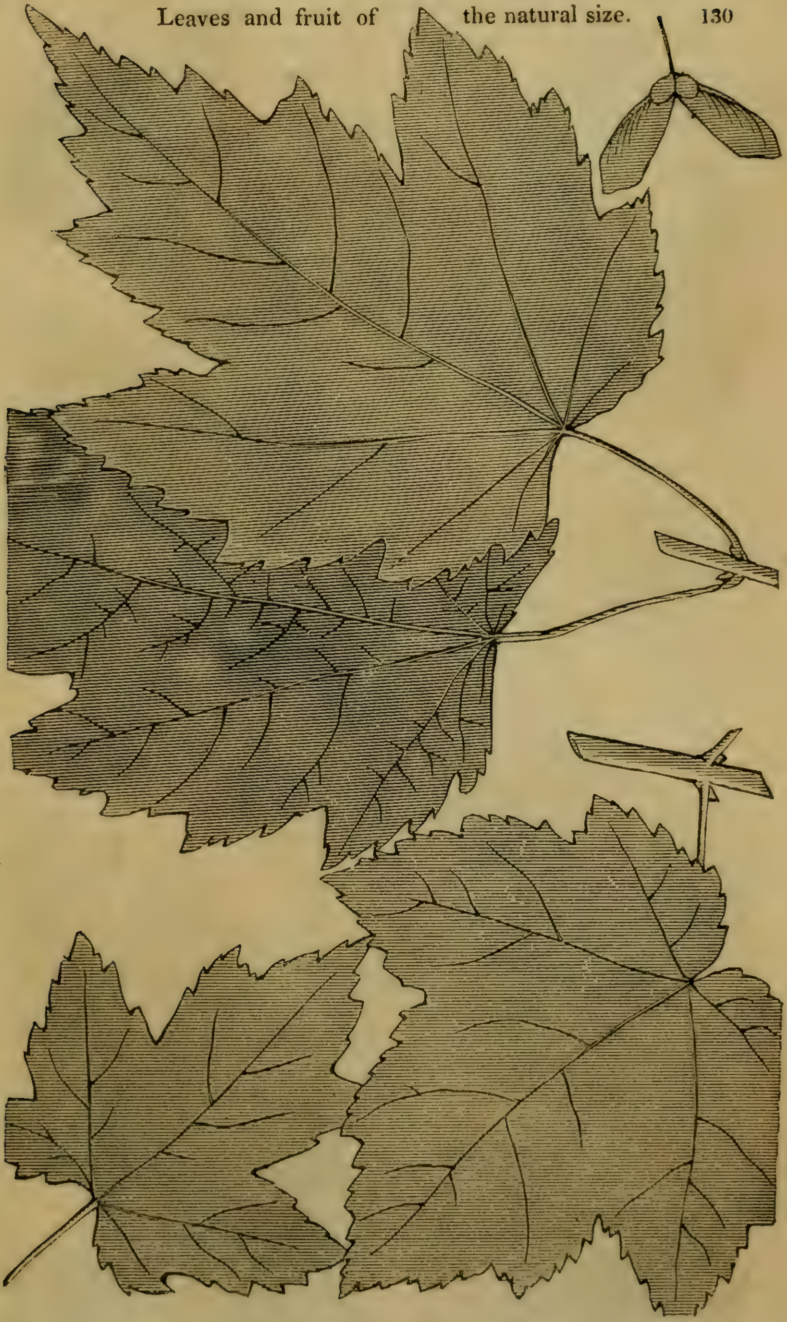
Leaves and fruit of the natural size.



129

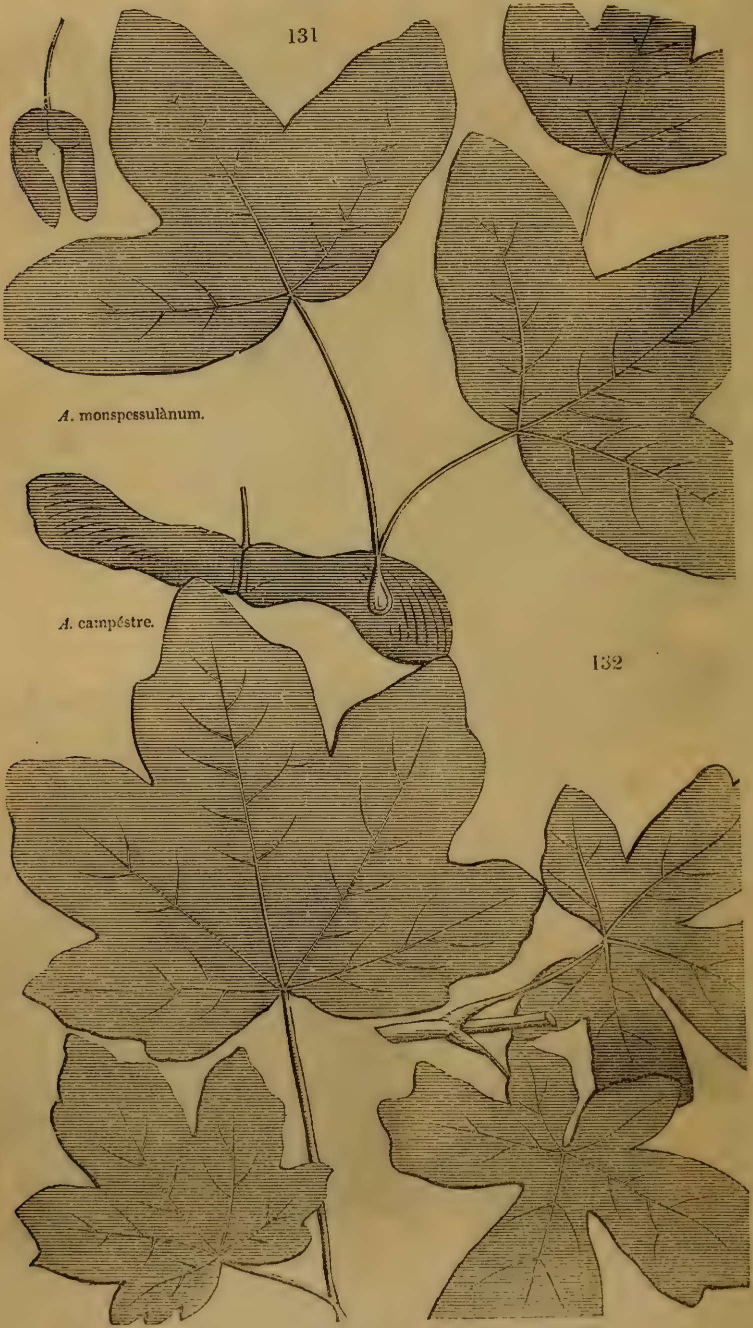
A`cer rùbrum. The red-*flowered* Maple.

Leaves and fruit of the natural size. 130

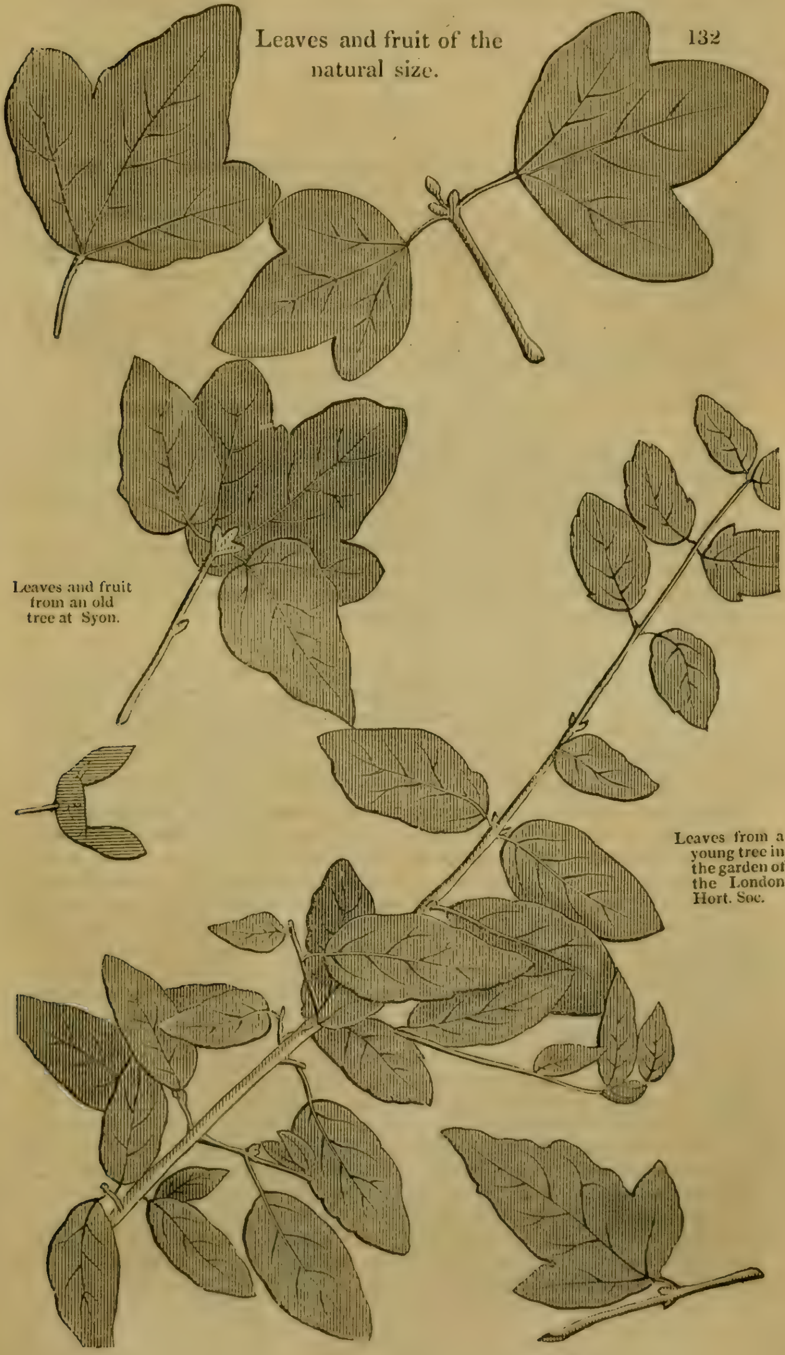


A'*cer monspessulànum, and* A. *campéstre.* The Montpelier Maple, and the *common*, or field, Maple.

Leaves and fruit of the natural size.


131
A. monspessulànum.
A. campéstre.
132

A`cer créticum. The Cretan, or various-leaved, Maple.


Leaves and fruit of the natural size.
132
Leaves and fruit from an old tree at Syon.
Leaves from a young tree in the garden of the London Hort. Soc.

Genus II.

NEGU'NDO Mœnch. The Negundo, *or Box Elder.* *Lin. Syst.* Diœ̀cia Pentándria.

Identification. Mœnch. Meth., 334.; Dec. Prod., 1. p. 596.; Don's Mill., 1. p. 647. and 651.
Synonymes. *A*̀cer *Lin.*; *Negúndium* Rafinesque.
Derivations. This genus was constituted from *A*̀cer *Negúndo* L.; but the meaning of the latter word is unknown. Probably, it may be merely the Illinois name of Gigueres (from *giguer*, to romp, alluding to the tremulous and playful motion of the long pinnated leaves) Latinised.

Gen. Char. *Sexes* diœcious. *Flowers* without a corolla. *Calyx* with 4—5 unequal teeth. *Male flowers* upon thread-shaped pedicels, and disposed in fascicles: anthers 4—5 linear, sessile. *Female flowers* disposed in racemes. Leaves impari-pinnately divided. (*Dec. Prod.*, i. p. 596.)

⚘ 1. *N.* FRAXINIFÒLIUM *Nutt.* The Ash-leaved Negundo.

Identification. Nutt. Gen. Amer., 1. p. 253.; Dec. Prod., 1. p. 596.; Don's Mill., 1. p. 651.
Synonymes. *A*̀cer *Negúndo* L., *Mich. Arb.*, *Tratt. Arch.*; *N.* aceroïdes *Mœnch*; *Negúndium* americànum *Rafin.*; the Ash-leaved Maple, the Black Ash; E'rable à Feuilles de Frêne, *Fr.*; E'rable à Giguières, *Illinois*; Eschenblättriger Ahorn, *Ger.*
Engravings. Mich. Arb., 2. t. 16.; Tratt. Arch., 1. No. 10.; Schmidt, Arb., 1. t. 12.; Wats. Dend., t. 172.; E. of Pl., No. 14294.; and the plate of this species in Vol. II. It is the female plant that is represented in these figures, except, perhaps, that of Trat. Arch., which we have not seen.

Spec. Char. &c. Leaves of from 3 to 5 leaflets, the opposite ones coarsely and sparingly toothed, the odd one oftener three-lobed than simple. (*Dec. Prod.*, i. p. 596.) A tree from North America, in 1688, growing to the height of 50 ft. or 60 ft., and flowering in April.

Variety.

⚘ N. f. 2 *críspum* G. Don. *The curled*-leaved *Ash-leaved Negundo*, or Box Elder.—Figured in our Second Volume. The plant of this variety in the arboretum of the London Horticultural Society is of the male sex: the inflorescence consists of pendulous panicles of flowers, that are green, with some redness from the colour of the anthers; and each is placed upon a slender peduncle of about 1 in. long.

Description. As far as is known, only the female plant of the species has, as yet, been introduced into England. The flowers are produced, profusely, about the middle of April, and appear with the leaves: they are green, small, and in slender pendulous racemes. The racemes of flowers are inconspicuous, so that the flowering of the tree may occur without being noticed, unless the tree be carefully watched at its flowering season. The racemes of fruits that succeed to the flowers, increasing gradually to the length of 6 in. or 7 in., become obvious as the season advances, and appear conspicuously among the foliage. The leaves are opposite, and are from 6 in. to 15 in. long, according to the vigour of the tree, and the moisture of the soil in which it grows. Each leaf is composed of two pairs of leaflets, with an odd one. The leaflets are petioled, oval-acuminate, and sharply toothed: towards autumn, the common petiole becomes of a deep red. The tree grows rapidly, arriving at maturity in 15 or 20 years; and in a suitable soil and situation, attains the height of 40 ft. or 50 ft.: it branches at a small distance from the ground, and forms a loose and wide-spreading head. The bark of its trunk is brown; and there is a disagreeable odour in the inner bark: that of the young branches is of a smooth rush-like appearance, interrupted by very few buds, and of a most beautiful pea-green, like the shoots of the common jessamine (*J*asmìnum officinàle), but on a larger scale. The proportion of the sap-wood to the heart-wood is large, except in very old trees: in these the heart-wood is variegated with rose-coloured and bluish veins.

Geography, &c. This tree is a native of the United States, and of Canada: in the latter country, it is abundant about the Red River, in N. lat. 54°, which is its most northern limit. It is seldom found in the northern states of the Union, or in the maritime parts of the southern states. It commences on the banks of the Delaware, in the neighbourhood of Philadelphia, and increases towards the Alleghany Mountains, to the west of which it is most abundant; and, instead of being confined, as in the upper parts of Virginia and of the Carolinas, to the river sides, it grows in the woods, with the locust (Robínia), wild cherry (Cérasus virginiàna), and coffee tree (Gymnócladus). But in the bottoms which skirt the rivers, where the soil is deep, fertile, constantly moist, and often inundated, this tree is most abundant, and attains the largest size. Even here, however, the tree seldom exceeds the height of 50 ft., with a trunk 20 in. in diameter; and trees of these dimensions, Michaux adds, are found only in Tenessee, and in the back parts of Georgia, which lie far to the south. In Kentucky, it seldom attains above half this height.

History. This species was cultivated by Bishop Compton in 1688; and it was introduced into France by Admiral Gallisonière, in the time of Du Hamel. As already observed, only the female plant of the species is in British gardens, though the male plant exists in the form of the variety *N. f.* críspum. Both male and female plants appear to be in cultivation in France; because, according to Baudrillart, the Administration of Forests at Paris received a quantity of seeds from the neighbourhood of Lyons, from which a number of young plants were raised, and distributed through the national forests. The old tree of this species, in the garden at Fulham, planted by Bishop Compton in 1688, measured, in 1793, 6 ft. 4 in. in girt at 3 ft. from the ground, and was computed to be 45 ft high. In 1809, it measured 7 ft. 1½ in. in girt; and in 1835, as appears in p. 43., the dimensions are scarcely varied. The tree, from the rapidity of its growth, its showy appearance, the fine green of its shoots, its large pinnate leaves (which move with the slightest breeze) and spreading head, and its faculty of growing in almost any kind of soil, is a general favourite, and is to be found in most collections.

Properties, Uses, &c. The wood of this tree has a fine even grain, and is saffron-coloured, slightly mixed with violet, but it is rather tender; the proportion of the soft wood to the heart-wood is so great, that it has never been used for any purpose in America except for that of fuel: in Europe, it is used for cabinet-making, particularly for inlaying; it works well, and is elastic and sonorous. According to some, sugar has been extracted from the sap; but Michaux denies this to be the case. He suggests that, from its rapid growth, after being cut down to the ground, it might form a valuable underwood, to be cut every 3 or 4 years, for fuel, charcoal, or other purposes. It has been tried in this way in France; but, unless the soil be kept constantly humid, the stool is found to decay in a very few years. Baudillart considers it the least useful of all the tree maples. In England, it is solely to be considered as an ornamental tree; and, as we have before observed, it is one of considerable show; and, being also one of rapid growth, it well merits the attention of planters, in situations where immediate effect is an object.

Soil, Situation, &c. The same soil and situation which suit the *A'cer* will answer for the *Negúndo.* The plant grows with amazing rapidity, when the soil is deep and somewhat moist; but, as it is not a long-lived tree, it should not be placed in situations where the permanent effect of wood is of importance. When raised from seed, it should always, if possible, be sown in the autumn, as soon as practicable after gathering, as it keeps with difficulty till the spring, even when mixed with sand.

Statistics. In the environs of London, the oldest tree is that already mentioned at the Bishop of London's; and the largest one, at Kenwood, 35 years planted, and 47 ft. high. There are trees at Syon, at Kew, and at Purser's Cross, above 40 ft. high; in Buckinghamshire, at Temple House, 40 years planted, and 40 ft high; in Yorkshire, at Grimston, 10 years planted, and 30 ft. high. In Wales, in Pembrokeshire, at Golden Grove, 30 years planted, and 25 ft. high. In Scotland, in the Glasgow Botanic Garden, 14 years planted, and 14 ft. high. In Ireland, in Galway, at Coole, 39 ft. high. In France, Michaux informs us, a row of these trees was planted in the Jardin des Plantes, in the Rue de Buffon, which gave an excellent idea of their appearance in their native forests; the highest these trees now remaining, estimated at upwards of 60 years of age, are 51 ft. in height, with heads 54 ft. in diameter. At Toulon, in the Botanic Garden, a tree 20 years planted, is 50 ft high. In Saxony, at Wörlitz, a tree, 65 years planted, is 40 ft. high. In Austria, in Held's Nursery, at Vienna, 20 years planted, and 25 ft. high; at Brück, on the Leytha, 48 years planted, and 80 ft. high, with a head 48 ft. in diameter, close by water. In Prussia, at Sans Souci, 45 years planted, 24 ft. high. In Bavaria, at Munich, 24 years planted, and 30 ft. high. In Hanover, in the Botanic Garden at Göttingen, 20 years planted, and 40 ft. high.

Commercial Statistics. In London, plants of the species are 1*s.* each, of the variety *N. f.* críspum 1*s.* 6*d.* each, and seeds of the species 4*s.* a quart. At Bollwyller, plants of the smallest size of the species are 50 cents each, and larger plants 2 francs. At New York, plants are 25 cents each, and seeds 1 dollar a quart.

App. i. *Anticipated Species of* Negúndo.

🌳 N. *mexicànum* Dec. is a native of Mexico, with trifoliate leaves, which grows to the height of 40 ft. It has been described under the name of *A.* ternàtum *Moc.*; and also by De Candolle, who expresses a doubt as to whether it may not be a variety of *N. f*raxinifòlium. Seeds or plants of it ought, if possible, to be obtained from Mexico.

🌳 N. *cochinchinénse* Dec. is a doubtful species, probably belonging to Sapindàceæ rather than *A*ceràceæ. It is a tree 25 ft. high, in the woods of Cochin-China, and would form a very desirable addition to the British arboretum. A variety of *N. f*raxinifòlium (the leaves having their two lower and their terminate leaflets ternate) is mentioned by Dr. Hooker, as having been received by him from Dr. Schwinitz in the state of dried specimens. (*Fl. Bor. Amer.*, i. 114.)

App. I. *Other Aceràceæ.*

Dobínea vulgàris *Hamilt.* (altered from the Nepalese name), a shrub 6 ft. high, a native of Nepal, with elliptical, oblong, acutely serrated leaves, is, in all probability, hardy, and would add to the variety of British collections. There no other species of this genus, and no other genus belonging to the order *A*ceràceæ has been yet discovered and recorded, either hardy or tender.

CHAP. XXIII.

OF THE HARDY TREES AND SHRUBS OF THE ORDER ÆSCULAˋCEÆ.

Identification. Lindl. Key.
Synonymes. Castaneàceæ *Link*; Hippocastàneæ *Dec.*

Distinctive Character. Calyx campanulate, 5-lobed. Ovary roundish, trigonal. Seeds large and globose; albumen wanting. Embryo curved, inverted, with fleshy, thick, gibbous cotyledons not produced above ground in germination. Plumule large, 2-leaved. Deciduous trees, with opposite digitate leaves. The fruit large and bitter, sternutatory, abounding in potash and starch. The bark astringent and tonic; and the fruit containing æsculine, a febrifuge. The genera are two, which are thus contradistinguished: —

Æ'sculus *L.* Capsule echinated.
Paˋvia Boeh. Capsule smooth.

Genus I.

Æ'SCULUS *L.* The Horsechestnut. *Lin. Syst.* Heptándria Monogýnia.

Identification. Lin. Gen., No. 462.; Hayne Dend., p. 43.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 562.
Synonymes. *H*ippocástanum *Tourn.*; Marronier d'Inde, *Fr.*; Rosskastanie, *Ger.*
Derivation. The word Æ'sculus, derived from *esca*, nourishment, is applied by Pliny to a species of oak. which had an eatable acorn. The word Hippocástanum, from *hippos*, a horse, and *castanea*,

a chestnut, is said by some to have been given to this tree ironically, the nuts, though they have the appearance of sweet chestnuts, being only fit for horses; and by others, because, in Turkey, it is said the nuts are used for curing horses of pulmonary diseases. According to Evelyn, they are also given in England to horses that are broken-winded, and to other cattle that have coughs and colds.

Description. All the species (except one, which is a shrub) are deciduous trees, with deeply cut leaves, and showy flowers; and they are distinguished from the genus Pà*via* by the roughness of their fruit, and by the comparative roughness, also, of their leaves. To us it appears doubtful if the roughness of the fruit be a sufficient generic distinction, since it varies much in different individuals, and since, in some of the sorts, which have apparently been originated between Æ´sculus and Pà*via*, the fruit is as smooth, or nearly as much so, as in the proper pavias. It is highly probable that the two genera consist, in fact, of only two, or at most three, distinct species: however, all the different sorts in cultivation are so truly ornamental, that they may very conveniently be kept distinct, as races or botanical species. The common horsechestnut is invariably propagated by the nuts, which are sown when newly gathered, or in the following spring; and in either case they will come up the succeeding summer. All the other sorts, as being varieties of the species, are propagated by budding or grafting.

‡ 1. *Æ.* HIPPOCA´STANUM *L.* The *common* Horsechestnut.

Identification. Lin. Sp., 488.; Willd. Baum., p. 14.; Hayne Dend., p. 43.; Dec. Prod., 1. p 597.; and Don's Mill., 1. p. 652.

Synonymes. Hippocástanum vulgàre *Tourn.*; Marronier d'Inde, *Fr.*; gemeine Rosskastanie, *Ger.*

Engravings. Woodv. Med. Bot., t. 128.; Plenck Icon., t. 293.; Willd. Abbild., t. 40.; and the plate of this species in our Second Volume.

Spec. Char., &c. Leaflets 7, obovately cuneated, acute, and toothed. A tree, growing to the height of 50 ft. or 60 ft., in cultivation since 1629, and flowering in May.

Varieties.

- ‡ Æ. *H.* 2 *flòre plèno.* *The double-flowered Horsechestnut.* — This variety is recorded in nurserymen's catalogues, but is not common.
- ‡ Æ. *H.* 3 *variegàta.* *The variegated*-leaved *Horsechestnut.* — The leaves are blotched with yellow, or yellowish white, but they have a ragged and unhealthy appearance, and are by no means ornamental.

Description. A tree of the largest size, with an erect trunk, and a pyramidal head. The leaves are large, of a deep green colour, and singularly interesting and beautiful when they are first developed. When enfolded in the bud, they are covered with pubescence, which falls off as the leaves become expanded, sooner or later, according to the dryness or moistness of the season. The growth, both of the tree and of the leaves, is very rapid; both shoots and leaves being sometimes perfected in three weeks from the time of foliation; in which time, says Miller, I have measured shoots 1½ ft. long, with their leaves fully expanded. The flowers appear a short time after the leaves, and are white, variegated with red and yellow: they expand in May, and the fruit ripens about the end of September or the beginning of October. It is allowed to fall from the tree; but, if wanted for seed, must be soon afterwards gathered up, and either sown, or mixed with earth; because, if exposed to the atmosphere, it will lose its germinating faculties in a month. (*Baudrillart.*) The buds are covered with a gummy substance, which protects their downy interior from the wet. Miss Kent observes that "we cannot have a better specimen of the early formation of plants in the bud, than in that of the horsechestnut." A celebrated German naturalist detached from this tree, in the winter season, a flower bud not larger than a pea, and first took off the external covering, which he found consisted of seventeen scales. Having removed these scales, and the down which formed the internal covering of the bud, he discovered four branch leaves surrounding a spike of flowers, the latter of which were so distinctly visible, that, with the aid of a microscope, he not only counted 68 flowers, but could discern the pollen of the stamens, and perceive that some was opaque, and some transparent. This experiment may be tried by any one, as the flowers may be perceived with a common magnifying glass; but, as detaching the scales requires care, it would be advisable for an unpractised student to gather the bud in early spring, when the sun is just beginning to melt away the gum with which the scales are sealed together. (*Mag. Nat. Hist.*, vol. iii. p. 135.)

Geography. "The native country of the common horsechestnut," Mr. Royle observes, "is yet unknown, though stated, in some works, to be the north of India." He adds that he has "never met with it, though often visiting the lofty mountains of Northern India, where, if anywhere, it was likely to be found, and where the nearly allied Indian pavia is so abundant." (*Illust.*, p. 135.) As the genus Pàv*ia* is a native both of India and America, and as *Æ'*sculus ohioénsis, which is nothing but a variety of the common horsechestnut, is a native of North America, it seems to us highly probable that the genus *Æ'*sculus will ultimately be found to belong to both continents.

History. The horsechestnut passed from Asia to Europe about the middle of the sixteenth century. The tree was first described by Matthiolus, and afterwards by Clusius in his *Rariorum Plantarum Historia, &c.* He there says, that, in 1581, it was still considered as a botanical rarity; but that in 1588 there was a plant of the species at Vienna, that had been brought there twelve years before, but which had not then flowered. In France, it was first raised from seed procured from the Levant, in the year 1615, by one Bachelier whose flower-gardens at Paris were then celebrated. The largest tree of the kind in France, and which was considered as the parent stock from which all the others have been propagated, formerly existed in the gardens of the Temple. (*Beckmann's Hist.*, vol. i. p. 317.) A tree of this species was planted in the Jardin des Plantes, in 1650, which was the second plant introduced into France: it died in 1767; and a section of its trunk is still preserved in the Museum of Natural History. According to M. Jaume Sainte-Hilaire (see p. 147.), and his account appears to us the most probable, the horsechestnut passed from the mountains of Thibet to England in 1550, and was afterwards taken to Vienna by Clusius, and thence to Paris by Bachelier. The earliest notice which we have of the horsechestnut being in England is in Gerard's *Herbal*, where, in 1579, he speaks of it as a rare foreign tree. In Johnson's edition of the same work, in 1633, the horsechestnut is said to be growing in Mr. Tradescant's garden at South Lambeth. Parkinson, in 1629, says, "Our Christian world had first a knowledge of it from Constantinople." The same author placed the horsechestnut in his orchard, as a fruit tree, between the walnut and the mulberries. How little it was then known may be inferred from his saying, not only that it is of a greater and more pleasant aspect for the fair leaves, but also of as good use for the fruit, which is of a sweet taste, roasted and eaten, as the ordinary sort. Houghton (1700) mentions some horsechestnut trees at Sir William Ashhurst's at Highgate, and especially in the Bishop of London's garden at Fulham. Those now standing at Chelsea College were then very young. There was also a very fine one in the Post-house Garden, in Old Street, and another not far from the Ice-house, under the shadow of the Observatory in Greenwich Park. (*Mart. Mill.*) In Germany, as we have seen in p. 147., the horsechestnut, after having been planted at Vienna, soon found its way to Baden, where it was planted about the end of the sixteenth century, and where some of the trees are still in existence. The tree is now generally cultivated in the middle states of Europe, and also in North America.

Properties and Uses. The wood weighs, when newly cut, 60 lb. 4 oz. per cubic foot; and, when dry, 35 lb. 7 oz.; losing, by drying, a sixteenth part of its bulk. According to other experiments, the wood, green, weighs 62 lb. 3 oz.; half dry, 46 lb. 2 oz.; and quite dry, 37 lb. 3 oz. It is soft, and unfit for use where great strength, and durability in the open air, are required; nevertheless, there are many purposes for which it is applicable when sawn up into boards; such as for flooring, linings to carts, packing-cases, &c. In France, sabots are made from it; and it is said to be used by carvers, turners,

&c. Boutcher says, that it is suitable for water-pipes that are to be kept constantly under ground; and it is also recommended for this purpose by Du Hamel. The charcoal of the horsechestnut may be used in the manufacture of gunpowder; and the ashes of every part of the plant, more especially of the fruit, afford potash in considerable quantity. The bark, which is very bitter, is employed for tanning, and also for dyeing yellow; and it has been used medicinally as a substitute for Jesuits' bark. In Turkey, the nuts are ground, and mixed with horse food, especially when the horses are broken-winded: and, in their natural state, they are eaten by goats, sheep, and deer. Rutty says the nuts are an excellent food for deer and hogs: they also possess a detergent quality, and serve, in some degree, as a soap. They are used in Ireland to whiten flaxen cloth, and for this purpose are rasped into water, in which they are allowed to macerate for some time. (*Nat. Hist. of the County of Dublin*, vol. i. p. 107.) The nuts, when ground into flour, and mixed in the proportion of one third with the flour of wheat, are said to add to the strength of bookbinder's paste. (*Mech. Mag.*, vol. viii. p. 223.) M. Vergaud has proposed to change the starch which can be extracted from the nut into sugar, and afterwards to employ it in distillation. (*Gard. Mag.*, vol. i. p. 318.) Parmentier, in his *Nouveau Dictionnaire d'Histoire Naturelle*, after noticing most of the uses to which this tree and its nuts have been applied, says, it appears, after all, that no use applicable to every-day purposes has yet been discovered respecting it. (See *Baudrillart*, *Traité*, *&c.*, tom. ii. p. 364.) In Britain, the horsechestnut can only be considered as an ornamental tree, and, as such, is well known, and needs no eulogium. It produces a splendid effect when in flower, either singly, in avenues, or on the margins of plantations. The finest avenue of these trees in England is that at Bushy Park. Gilpin objects to the horsechestnut, as being lumpish in its form; but in saying this he evidently judged of the tree merely with reference to picturesque beauty, to which it has few pretensions till it becomes very old: whereas, in point of floral beauty, it and its several varieties, or races, are unequalled by any tree of equal size which will endure our climate. A very remarkable vegetable principle, called æsculine, which is found in this genus, and which is said to possess alkaline properties, and to act as a febrifuge, is mentioned in Stephenson and Churchill's *Medical Botany*, vol. ii. Miss Kent states that the fruit is not only sometimes ground and given to horses, but that deer are very fond of it, and that it is given to sheep, in a raw state, or when made into a paste, after maceration in lime water, to fatten them. Soap and starch have also been procured from these nuts. (*Mag. Nat. Hist.*, iii. p. 135.)

Poetical and legendary Allusions. The horsechestnut, where allowed to attain its proper shape on a lawn, is certainly a most magnificent tree. Some authors have compared it to an immense lustre or chandelier, its long racemes of flowers tapering up from its drooping foliage like lights. A horsechestnut tree, in full flower, has been called by Daines Barrington a giant's nosegay; and in the *Mag. Nat. Hist.*, vol. iv. p. 238., an eloquent description of this tree has been given by Mr. Dovaston, who compares its racemes of flowers to those of a gigantic hyacinth. Miss Kent, in the same work, vol. iii. p. 135., calls it a Brobdignagian lupine. In Paris, the magnificent trees in the garden at the Luxembourg have been celebrated by Castel.

> "Là de marroniers les hautes avenues
> S'arrondissent en voûte, et nous cachent les nues."

The manner in which it scatters its flowers on the grass, and the comparative uselessness of its fruit and timber, make it an excellent emblem of ostentation.

Soil, Situation, &c. The horsechestnut requires a deep, free, loamy soil, and will neither attain an ample size, nor flower freely, except in a situation rather sheltered than exposed. In England, it seldom suffers by the frost in spring; and the severest of our winters do not injure either its young shoots or its buds, which are covered with a resinous gluten. The species is always propagated by the nut, sown in autumn or spring, and covered with from 2 in. to 4 in. of soil. The cotyledons do not rise to the surface, as in the oak, the beech, and some other trees. Some nurserymen cause the nuts to germinate, before sowing them, in order to have an opportunity of pinching off the extremity of the radicle; by which means the plants are prevented from forming a taproot; or, at least, if a taproot is formed, it is of a much weaker description than it otherwise would be, and the number of lateral fibres is increased; all which is favourable for transplanting. When the tree is intended to attain the largest size, in the shortest time, the nut ought to be sown where the tree is finally to remain; because the use of the taproot is mainly to descend deep into the soil, to procure a supply of water, which, in dry soils and seasons, can never be obtained in sufficient quantities by the lateral roots, which extend themselves near the surface in search of nourishment and air.

Statistics. Æ. Hippocástanum in the Environs of London. At Syon, 80 ft. high, the diameter of the trunk 3 ft. 8 in., and of the head 48 ft.: at Enfield, 100 ft. high (see our plate in Vol. II): at Ham House, 60 ft. high; the diameter of the trunk, at 1 ft. from the ground, 6 ft. 4 in., and that of the head 48 ft.; a magnificent tree, the trunk dividing, at 8 ft. from the ground, in three immense branches, which are respectively 2 ft. 2 in., 2 ft. 3 in., and 1 ft. 11 in. in diameter, at 4 ft. from the point where they separate from the trunk: at York House, Twickenham, 100 years planted, and 70 ft. high.

Æ. Hippocástanum South of London. In Cornwall, at Caulen Penryn, 55 ft. high, the trunk 5 ft. in diameter, and the diameter of the head 86 ft. In Devonshire, in Veitch's Nursery, Exeter, 34 years planted, and 43 ft. high; at Luscombe, 34 years planted, and 44 ft. high. In Hampshire, in Wilkins's Nursery, Isle of Wight, 30 years planted, and 35 ft. high.; in Alresford, 81 years planted, and 59 ft. high; at Southampton, 70 years planted, and 80 ft. high. In Somersetshire, at Nettlecombe, 60 years planted, and 60 ft. high. In Wiltshire, at Wardour Castle, 45 years planted, and 50 ft. high; and 10 years planted, and 22 ft. high.

Æ. Hippocástanum North of London. In Herefordshire, at Eastnor Castle, 18 years planted, and 40 ft. high. In Gloucestershire, at Doddington, 60 ft. high, and the diameter of the head 80 ft. In Suffolk, at Finborough Hall, 80 years planted, and 100 ft. high; the diameter of the trunk, at 1 ft. from the ground, 5 ft., and of the head 30 ft. In Lincolnshire, at Nocton, 59 ft. high; said to be the largest in Britain. This is a most magnificent tree, with immense branches, extending over a space 305 ft. in circumference: the branches are so large as to require props; so that at a little distance it looks like an Indian banyan tree. In Oxfordshire, in a field adjoining the Botanic Garden at Oxford, 60 ft. high, the head 50 ft. in diameter; and a tree of the pendulous variety, also 60 ft. high. In Staffordshire, at Trentham, 60 ft. high. In Warwickshire, at Coombe Abbey, 100 years planted, 70 ft. high, the diameter of the trunk 7 ft. 3 in., and of the head 103 ft. In Derbyshire, at Keddleston, a tree, the head of which was broken to pieces by lightning soon after the family had been drinking tea under it: this head is 62 ft. in diameter, and the branches touch the ground all round: the trunk is 16 ft. in circumference. In Worcestershire, at Croome, 50 years planted, and 60 ft. high; in Yorkshire, at Grimston, 10 years planted, and 36 ft. high.

Æ. Hippocástanum in Scotland. In the environs of Edinburgh, at Hopeton House, 45 ft. high, the diameter of the trunk 4 ft. 3 in., and of the head 50 ft. In Renfrewshire, in the Glasgow Botanic Garden, 12 years planted, and 18 ft. high In Banffshire, at Gordon Castle, 66 ft. high, the diameter of the trunk 4 ft. 7 in., and of the head 80 ft. In Forfarshire, at Cortachy Castle, 102 years planted, and 40 ft. high, the diameter of the head 43 ft. In Haddingtonshire, at Tynningham, 44 ft. high, the diameter of the head 45 ft.; at Fountain Hall, the trunk 8 ft. 2 in. in girt, at 3 ft. from the ground, and the diameter of the head 50 ft. In Kirkcudbrightshire, at St. Mary's Isle, 55 ft. high. In Fifeshire, 35 years planted, and 36 ft. high, the head 52 ft. in diameter. In Perthshire, in the Perth Nursery, 40 years planted, and 54 ft. high; at Taymouth, 50 ft. high. In Rosshire, at Brahan Castle, 60 ft. high, the diameter of the head 50 ft. In Clackmannanshire, at Tullibodie, 70 ft. high, the diameter of the head 40 ft. Sir Thomas Dick Lauder, speaking of horsechestnuts in Scotland, says, "A horsechestnut, at Halton, in the county of Edinburgh, measured 11 ft. 4 in. in girt, at 4 ft. from the ground. A horsechestnut, at Preston Hall, at 1 ft. from the ground, measures 14 ft. 3 in.; and at 3 ft. from the ground, 10 ft. 9 in. There are many trees near it of dimensions little inferior The horsechestnuts on the lawn, which was formerly the garden of Dawick, the seat of Sir John Murray Nasmyth, Bart, a few miles above Peebles, in Tweeddale, are certainly the oldest and finest in Scotland; or, perhaps, we should say there are none equal to them in Britain. They stand 12 ft. apart from each other; but they support a mass of foliage that appears to be but one head, which takes a beautiful form, and covers an area of ground the diameter of which is 96 ft. The larger of the two is, in girt, immediately above the root, 16½ ft. The smaller tree is 12½ ft. in circumference at the base, and 10 ft. at 3 ft. high. These measurements are kindly communicated to us by Sir John Nasmyth himself; and, from what Dr. Walker has said of these two horsechestnuts, we have no doubt that they are from 180 to 190 years of age." (*Lauder's Gilpin*, i. p. 270, 271.)

Æ. Hippocástanum in Ireland. In the environs of Dublin, at Cypress Grove, 60 ft. high, the diameter of the trunk 3 ft., and of the head 75 ft. In Connaught, at Makree Castle, 71 ft. high, the diameter of the trunk 3 ft. 3 in., and of the head 46 ft. In Down, at Ballyleady, 60 years planted, and 40 ft. high, the diameter of the trunk 14 in., and of the head 30 ft. In Fermanagh, at Florence Court, 70 years planted, and 48 ft. high, the diameter of the head 80 ft.

Æ. Hippocástanum in Foreign Countries. In France, in Paris, there are some very fine specimens in the gardens of the Luxembourg; though the original trees, mentioned in p. 147., are dead. At Nerrières, near Nantes, there is a tree 100 years planted, which is 70 ft. high. In Saxony, at Wörlitz, 65 years planted, and 40 ft. high. In Austria, at Vienna, at Laxenburg, 50 years planted, and 35 ft. high; at Kopenzel, 40 years planted, and 30 ft. high. In Prussia, at Sans Souci, 60 ft. high. In Bavaria, at Munich, 24 years planted, and 40 ft. high.

Commercial Statistics. Plants, in the London nurseries, are, seedlings 7*s.* a thousand; transplanted plants, from 2 ft. to 5 ft. high, 5*s.* a hundred; and the variegated variety 2*s.* 6*d.* a plant: at Bollwyller, seedlings, 2 years transplanted, are 15 francs a hundred; the variegated-leaved variety, and a variety with fern-like leaves (*Æ. a*spleniifòlia), 3 francs each: at New York, ?.

‡ 2. *Æ.* (H.) OHIOE'NSIS *Michx.* The Ohio Æsculus, *or Horsechestnut.*

Identification. Mich. Arb., 3. p. 242.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 652.

Distinct. Char., &c. The fruit is said to be of about half the size of that of the common horsechestnut. Judging from the two trees in the garden of the London Horticultural Society, one of which flowered in 1835, we should say that this was nothing more than a variety of the common species, and far inferior to it in point of beauty.

‡ 3. *Æ.* (H.) RUBICU'NDA *Lois.* The reddish-*flowered* Æsculus, *or Horsechestnut.*

Identification. Loiseleur Herb. Amat.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 652.; Marronier rubicund, *Fr.*; scharlachrothe Rosskastanie, *Ger.*

Synonymes. *Æ.* cârnea *Hort.*, and *Lindl. Bot. Reg.*; *Æ.* ròsea *Hort.*; *Æ.* coccínea *Hort.*; *Æ.* Hippocástanum var. rubicúndum *Schubert*; Whitley's fine scarlet.

Engravings. Herb. Amat., t. 367.; Hayne, Abbild., t. 22.; Bot. Reg., t. 1056., as *Æ.* cárnea; Wats. Dendr., t. 121., as *Æ.* cárnea; and the plate in our Second Volume.

Distinct. Char., &c. Petals 4, with the claws shorter than the calyx. The flowers are scarlet, and very ornamental; the leaves of a deeper green than those of any other sort. It is doubtful whether this tree be a native of North America, or originated in British gardens. It passes under different names in different nurseries, as will be seen by our list of synonymes, and may be considered as differing little, if at all, from *Æ.* cárnea *Lindl.* It is distinguished from Pàv*ia* rùbra by its larger and rougher leaves, and from *Æ.* Hippocástanum by the leaves being fuller and more uneven on the surface, and of a deeper green. The tree is also smaller, and of much less vigorous growth; but, as it has only been in cultivation since 1820, sufficient time has not elapsed to know its ultimate size. It is, without doubt, the most ornamental sort of the genus.

Statistics. In the environs of London, at Kenwood, 8 years planted, and 12 ft. high; in Devonshire, at Endsleigh Cottage, 18 years planted, and 30 ft. high; in Staffordshire, at Arley Hall, 27 ft. high, diameter of the trunk 10 in., and of the head 24 ft.; in Suffolk, at Ampton Hall, 12 years planted, and 12 ft. high; in Surrey, at Farnham Castle, 20 years planted, and 10 ft. high.

Commercial Statistics. Plants of this sort, in the London nurseries, cost from 1*s.* 6*d.* to 3*s.* 6*d.* each; at Bollwyller, 2 francs; at New York, ?.

‡ 4. *Æ.* (H.) GLA`BRA *Willd.* The smooth-*leaved* Æsculus, *or Horsechestnut.*

Identification. Willd. Enum., p. 405.; Hayne Dend., p. 44.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 652.

Engravings. Hayne Abbild., t. 34.; and our *fig.* 133.

Distinct. Char., &c. Claws of the petals of about the length of the calyx. Leaflets of a pale green, very smooth. Flowers of a greenish yellow. A low tree, a native of North America, introduced in 1822, and flowering, with the other sorts, in June. This sort is very distinct; but whether it is a species, or not, appears to us doubtful. The whole plant is comparatively glabrous, and even the fruit

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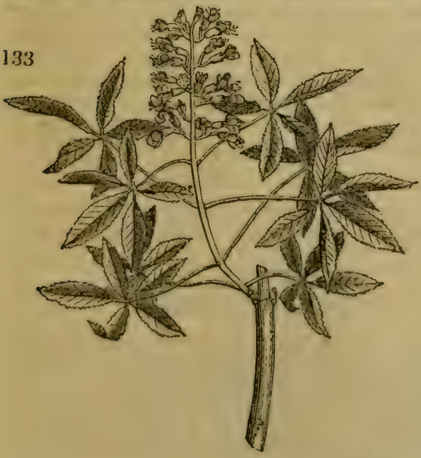

partakes of that quality. The tree is of less vigorous growth than *Æ.* rubicúnda; and the shoots take a more upright direction. It appears to lose its leaves sooner than most of the other sorts. There is a tree of it in the London Horticultural Society's Garden. Plants, in the London nurseries, cost 3*s.* 6*d.* each.

¥ 5. *Æ.* (H.) PA'LLIDA *Willd.* The pale-*flowered* Æsculus, *or Horsechestnut.*

Identification. Willd. Enum., p. 406.; Hayne Dend., p. 44.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 652.
Synonyme. Gelbliche Rosskastanie, *Ger.*
Engravings. Hayne Abbild., t. 25.; and our *fig.* 134.

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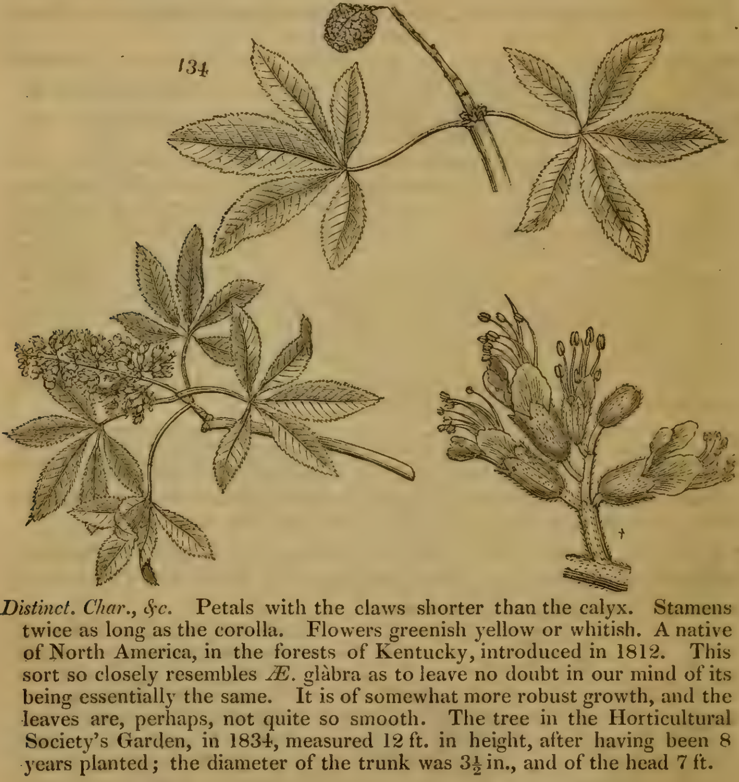


Distinct. Char., &c. Petals with the claws shorter than the calyx. Stamens twice as long as the corolla. Flowers greenish yellow or whitish. A native of North America, in the forests of Kentucky, introduced in 1812. This sort so closely resembles *Æ.* glàbra as to leave no doubt in our mind of its being essentially the same. It is of somewhat more robust growth, and the leaves are, perhaps, not quite so smooth. The tree in the Horticultural Society's Garden, in 1834, measured 12 ft. in height, after having been 8 years planted; the diameter of the trunk was 3½ in., and of the head 7 ft.

¥ 6. *Æ.* (H.) LYO'N*II* Hort. Lyon's Æsculus.

Plants of this species, or variety, are in the garden of the London Horticultural Society; but they are so small, that it is difficult to say what they will ultimately prove to be.

App. i. *Other Sorts or Varieties of Æ'sculus.*

In consequence of this genus ripening its seeds freely, and admitting of cross-fecundation with the genus Pàv*ia*, several varieties have, within these few years, been raised by British cultivators; and, indeed, there seems no limit to the number which may be raised by these means. In the Fulham Nursery are, *Whitley's fine scarlet*, which seems little, if at all, different from *Æ.* rubicúnda; *Æ. americàna*, which also differs little from *Æ.* rubicúnda; and several other varieties, which will be noticed in our appendix to the genus Pàv*ia.* (See *Gard. Mag.*, vol. xi. p. 248.) In the garden of the London Horticultural Society are the following names: — *Æ. H. incìsum*, *Æ. H. præ'cox*, *Æ. H. tortuòsum*, and *Æ. H. nìgrum*; but the plants to which they are applied are all quite small and young. It may be worth while to remark, that purchasers of the different varieties should always take care to have worked plants; and indeed they should, if practicable, endeavour to see the tree from which the plants have been worked, when that tree is in flower. For this reason we think that nurserymen, who propagate varieties of these and other select flowering trees, ought always to keep specimen plants in their own grounds, from which to take scions for propagation. At all events, such varieties ought never to be raised from seed; because, though there can be no doubt but that the progeny would bear a general resemblance to the parent, yet the particular feature for which the variety was cultivated might be wanting. For example, the flowers of the seedlings may come earlier or later, larger or smaller, than those of the parent. Early and late varieties of all showy-flowered trees are very desirable, because they prolong the season of blooming. Early leafing varieties of trees, and trees which retain their leaves late in the season, are also desirable; and in this respect the common horsechestnut varies exceedingly, as any one may observe, by walking along the avenue of horsechestnuts in Bushy Park in spring and autumn. There is one variety of the common horsechestnut, exemplified in a tree in the garden of the Tuilleries, which we should like much to see introduced into Britain. This tree is easily distinguished, even in summer, from all the others in the same garden, by the profusion of flowers with which it is covered, and also by the earliness of their appearance, and that of the leaves. The tree was first mentioned to us by our correspondent, Mr. Blaikie, some years since, as flowering always a fortnight earlier than the others; and another friend has supplied us with a fact respecting the individual tree at the Tuilleries, which is of some historical interest. On Napoleon's entry into Paris, on the 20th March, 1815, after his return from Elba, this tree furnished to him and his friends foliage for their personal decoration, being the only tree then in leaf in the garden of the Tuilleries. (See *Gard. Mag.*, vol. xi. p. 537.)

GENUS II.

PAˋVIA Boerh. THE PAVIA, *or SMOOTH-FRUITED HORSECHESTNUT TREE.* *Lin. Syst.* Heptándria Monogýnia.

Identification. Boerh. Lugd., t. 260.; Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 652.
Synonyme. Pavier, *Fr.*
Derivation. In honour of *Peter Paw*, a Dutch botanist, once Professor of Botany at Leyden.

Gen. Char. Middle-sized deciduous trees or shrubs, distinguishable from the horsechestnuts by the smoothness of their fruit, and the comparative smallness of their flowers, which have their petals erect and narrower. The leaves, also, are generally smaller, and smoother. There are probably only three, or possibly only two, aboriginal species.

‡ 1. P. RUˋBRA *Lam.* The red-*flowered* Pavia.

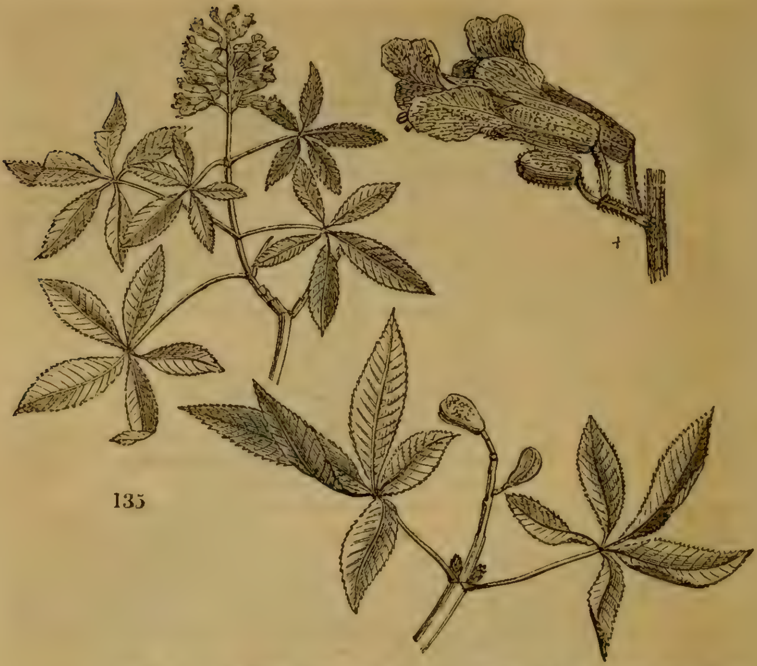
Identification. Lam. Illust.; Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 653.
Synonymes. Æˊsculus Pàv*ia* Lin.; Æ. Pàv*ia* var. α rùbra *Hayne Dend.*, p. 44.; Pàv*ia* parviflòra *Hort.*; small Buckeye, *Amer.*; Marronier Pavie, or Pavie à Fleurs rouges, *Fr.*; rothe Rosskastanie, *Ger.*
Engravings. Lam. Illust., t. 273.; Hayne Abbild., t. 21.; Wats. Dend., t. 120.; Krause, t. 55.; and our plate of the tree in Vol. II.

Spec. Char., &c. Fruit smooth. Corolla of 4 petals, that are longer than the stamens. Leaflets 5, elliptic-oblong, tapered to both ends, and smooth, as is the petiole; axils of the nerves hairy on the under surface of the leaf. (*Dec. Prod.*, i p. 598.) A slender-growing tree, from the mountains of Virginia and Carolina; and said, also, to be a native of Brazil and Japan. Introduced in 1711, and producing flowers, which are of a brownish scarlet colour, in May and June. Height, from 10 ft. to 20 ft.; or, in some cases, to 30 ft. The tree in the garden of the London Horticultural Society was, in 1834, 10 ft. high, after having been planted 8 years.

Description, &c. In its native country, the P. rùbra varies in magnitude from a low rambling shrub to a tree of 20 ft. or more in height. In England, it is in cultivation in various forms: as a tree, in which character it has, at Syon (see our plate in Vol. II.), attained the height of 26 ft.; as a pendulous tree, of 12 ft. or 14 ft. in height; and as a trailing shrub, under the name of P. hùmilis in the London Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges. In addition to these forms, there are several others which are enumerated below.

Varieties.

‡ *P. r.* 2 *argùta* G. Don. *The sharp*-toothed-leaved *red*-flowered *Pavia.*— Figured in the *Botanical Register*, t. 993., and in our *fig.* 135. Introduced into the garden of the London Horticultural Society from the nursery of M. Catros of Bordeaux, under the name of Æˊsculus Pàv*ia* parviflòra. It is a handsome small tree, with dark brownish red flowers,



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differing little from those of P. rùbra. The tree in the garden of the London Horticultural Society, which, in 1834, was marked *Æ'*sculus Pàv*ia* parviflòra, was then 15 ft. high, after having been 10 years planted.

¥ *P. r.* 3 *sublaciniàta* Wats. *The slightly cut*-leaved *red*-flowered *Pavia.*—Figured in *Wats. Dend.*, t. 120. Leaflets acutely serrated: in other respects it differs little from the species. In 1823, plants of it were in the Fulham Nursery, whence it was figured by Watson. The plants in the same nursery named *Æ'*sculus Pàv*ia* serràta (see *Gard. Mag.*, vol. xi. p. 248.) appear to be the same sort.

♣ *P. r.* 4 *hùmilis.* P. hùmilis *G. Don.* in *H. B.*, and in his *Mill.*; and *Æ'*sculus hùmilis *Lodd.* *The dwarf red*-flowered *Pavia.*—Figured in the *Botanical Register*, t. 1018. A diminutive, weak, straggling form of the species, probably obtained from some sport, and which, on its own root, is only a recumbent bush, from 2 ft. to 3 ft. in height; but which, when grafted on the common horsechestnut, forms the very beautiful pendulous low tree noticed below. A plant of P. hùmilis, in the garden of the London Horticultural Society, was, in 1834, 3 ft. high, after having been planted 7 years.

¥ *P. r.* 5 *hùmilis pèndula.* *The pendulous*-branched *dwarf red*-flowered *Pavia.*—Figured in our Second Volume. This is not properly a variety, but only a variation in form, produced by changing the position of the plant by grafting. There is a very handsome low tree of it in the arboretum at Messrs. Loddiges's, which continues flowering and fruiting almost the whole summer. We consider this one of the most beautiful and interesting forms of Pàv*ia*, and would recommend horsechestnut trees of 20 or 30 years' growth to be grafted all over with it at the points of the shoots, care being taken afterwards, once or twice in every year, to rub off all the buds from the stock as soon as they appear, so that the entire force of the plant may be directed to the nourishment of the scions. Plants of P. r. h. péndula, in the London nurseries, are 5*s*. each: but, as they are rather scarce, the readiest way of obtaining pendulous trees is, to procure plants of P. r. hùmilis, which can be had for 2*s*. each, and common horse-chestnut trees 12 ft. high, which can be had for 2*s*. 6*d*. each; and to graft the shoots of the former on the tips of those of the latter.

Statistics. In the environs of London, at Syon, there is a tree of P. rùbra 26 ft. high (as exhibited in the plate in our Second Volume); at Ham House, Essex, 21 ft. high, the diameter of the head, 32 ft.; in Hampshire, at Southampton, 12 years planted, and 20 ft. high; in Surrey, at Bagshot Park, 12 years planted, and 14 ft. high; in Wiltshire, at Wardour Castle, 20 years planted, and 30 ft. high; in Suffolk, at Finborough Hall, 6 years planted, and 10 ft. high. In France, at Paris, in the Jardin des Plantes, 23 years planted, and 30 ft. high; in the Botanic Garden at Toulon, 40 years planted, and 12 ft. high. In Hanover, at Schwöbber, 40 ft. high. In Saxony, at Wörlitz, 25 years planted, and 30 ft. high.

Commercial Statistics. Plants, in the London nurseries, are 1*s*. 6*d*. to 2*s*. 6*d*.; at Bollwyller, 80 cents; at New York, 25 cents, and nuts 40 cents a quart.

♆ 2. P. FLA'VA *Dec.* The yellow-*flowered* Pavia.

Identification. Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 653.
Synonymes. Æ'sculus flàva *Ait.*, *Hayne*; Æ. lùtea *Wangh.*; Pàv*ia* lùtea *Poir.*; the large Buckeye, big Buckeye, *Amer.*; the yellow Pavia.
Engravings. Wangh. in Act. Nat. Scrut. Berl., 8. t. 6.; Hayne Abbild., t. 23.; Krause, t. 44.; Wats. Dend. Brit., t. 163.; and our plate in Vol. II.

Distinct. Char., &c. Petioles pubescent, flattish towards the tip. Leaflets 5—7, pubescent beneath, and above upon the nerves. (*Dec. Prod.*, i. p. 598.) This species differs from P. rùbra, in being a much stronger plant, assuming the character of a tree of the second rate, and attaining the height of 30 ft. or 40 ft., or upwards, in England. The leaves are pubescent, and much paler than those of P. rùbra, and the flowers are yellow. The tree seems to partake both of the character of Æ'sculus and Pàv*ia*. It is a native of Carolina and Virginia, in mountainous woods, and was introduced into England in 1764. In its native country, on the declivities of mountains, where the soil is loose, deep, and fertile, this tree attains the height of 60 ft. or 70 ft., with a trunk 3 ft. or 4 ft. in diameter. The largest tree in England is at Syon, and is 40 ft. high, as exhibited in the plate in our Second Volume. The tree in the garden of the London Horticultural Society was, in 1834, 12 ft. high, having been planted 8 years. This species is not quite so free a flowerer as P. rùbra, and it is one of the first of the genus to drop its leaves in autumn: they generally commence falling about the middle of August, and the tree is frequently naked by the 1st of September. Like all the Æsculàceæ, to thrive, it requires a deep rich soil. It is commonly propagated by buds, because the colour of the flower is found to vary much in plants raised from seed. A nurseryman, writing on this subject in the *Gardener's Magazine* (vol. xi. p. 249.), observes that there are two varieties of P. flàva in cultivation in the English nurseries: one, an inferiorly flowering variety, generally raised from seed; and the other variety producing a larger flower, and of brighter colour, only to be propagated by budding or grafting. There are two fine grafted trees of this variety in the Fulham Nursery, with trunks 5 ft. and 6 ft. in circumference, and nearly 30 ft. in height.

Statistics. In the environs of London, at Syon, there is a tree 40 ft. high, already mentioned; in the Fulham Nursery, two, nearly 30 ft. high; at Kenwood, one, 40 years planted, which is 37 ft. high; at Ham House, Essex, one, planted by Dr. Fothergill, which is 28 ft. high; in the arboretum at Kew, the tree is 30 ft. high; at York House, Twickenham, 40 years planted, and 30 ft. high. In the Isle of Jersey, in Saunders's Nursery, 10 years planted, and 12 ft. high. In Lancashire, at Latham House, 14 years planted, and 25 ft. high; in Monmouthshire, at Dowlais House, 20 years planted, and 15 ft. high; in Oxfordshire, in the Oxford Botanic Garden, 40 years planted, and 34 ft. high. In Scotland, in Perthshire, in the Perth Nursery, 20 years planted, and 15 ft. high; in Stirlingshire, in Calendar Park, 10 years planted, and 14 ft. high. In Ireland, in the environs of Dublin, at Castletown, 35 ft. high; in the Glasnevin Botanic Garden, 30 years planted, and 30 ft high; in Louth, at Oriel Temple, 40 years planted, and 31 ft. high. In France, at Paris, in the Jardin des Plantes, 55 years planted, and 44 ft. high; in the Botanic Garden at Toulon, 40 years planted, and 18 ft. high. In Hanover, at Schwöbber, 40 ft. high. In Saxony, at Wörlitz, 20 ft. high. In Austria, at Kopenzel, 12 years planted, and 18 ft. high; at Brück on the Leytha, 24 ft. high.

Commercial Statistics. Plants, in London, cost from 1*s.* 6*d.* to 2*s.* 6*d.* each; at Bollwyller, 80 cents; and at New York, 25 cents, and nuts 40 cents a quart.

❀ 3. P. DI′SCOLOR *Swt. in H. B.* The two-coloured-*flowered* Pavia.

Identification. Swt. Hort. Brit., p. 83.; Don's Mill., 1. p. 653.
Synonyme. Æ′sculus díscolor *Ph.* and *Bot. Reg.*
Engraving. Bot. Reg., t. 310.

Distinct. Char., &c. The whole plant, including the young wood, is covered with pubescence. The flowers are large, showy, continuing a long time expanding, and numerous, though they are but sparingly succeeded by fruit. When the plant is raised from seed, it is remarkable for its thick, fleshy, carrot-like roots, which, in free soil, penetrate perpendicularly to the depth of 8 ft. or 10 ft., as has been found to be the case in the Hammersmith Nursery. This sort was introduced from North America (where it is found principally in the western territory of Georgia), in 1812, by Mr. Lyon. Unless when grafted on *Æ.* Hippocástanum, it is seldom seen above 4 ft. or 5 ft. in height; but it is a very free flowerer, and, considered as a shrub, one of the most ornamental in May that can be planted. The plant in the garden of the London Hort. Soc. was, in 1834, 4 ft. high, after having been 3 years planted. There are varieties of it in the nurseries under different names; one of these, raised by Messrs. Rivers at Sawbridgeworth, bears the name of P. cárnea pubéscens. There is a handsome specimen of this bush in the Hammersmith Nursery; it is about 5 ft. high, and 6 ft. or 8 ft. in diameter, and is profusely covered with bloom every year. A large tree of the common horsechestnut, covered with grafts of this species, as recommended in the case of P. hùmilis, would form a noble object. Scions taken from flowering trees, and grafted on P. hùmilis, would form beautiful miniature trees for pots. Scions from flowering trees, grafted on stocks of this species, flower the second year, and form the most beautiful flowering shrubs for small gardens that can well be recommended. The same may truly be said of P. hùmilis, and P. macrostàchya, and yet none of these species are ever to be met with in the suburban gardens of the metropolis. Plants, in the London nurseries, cost 2*s.* 6*d.* each.

⚘ 4. P. HY′BRIDA *Dec.* The hybrid Pavia.

Identification. Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 653.
Synonyme. Æ′sculus hýbrida *Dec. Hort. Monsp.*, 1813, p. 75.

Distinct. Char., &c. Leaves clothed beneath with velvety pubescence, petioles smooth; flowers variegated with yellow, white, and purple. The tree in the London Horticultural Society's Garden was, in 1834, 6 ft. high, after having been 5 years planted. The leaves and flowers bear some resemblance to those of P. díscolor; but the flowers of P. hýbrida are more sparingly produced. This sort is not in general cultivation; though, like every other kind of Pàv*ia* and *Æ′*sculus, it well deserves to be so.

⚘ 5. P. NEGLE′CTA *G. Don.* The neglected Pavia.

Identification. Loud. Hort. Brit., p. 143.; Don's Mill., p. 653.; Swt. Hort. Brit., p. 83.
Synonymes. Æ′sculus neglécta *Lindl. in Bot. Reg.*
Engravings. Bot. Reg., t. 1009.; and our *fig.* 136.

Distinct. Char., &c. Leaves with rufous down on the veins on the upper side, smooth beneath; rather plicate. Flowers pale yellow, veined with red. This is a tree resembling the preceding sort, and, like it, is apparently a hybrid between P. rùbra and P. díscolor. It was purchased by the London Horticultural Society from M. Catros of Bordeaux, under the name of *Æ.* ohioénsis. In the *Botanical Register,* it is said to be most nearly related to *Æ.* (Pàv*ia*) flàva, but to differ from it in the flowers appearing 10 days earlier, and in the leaflets being more glabrous, with rufous down on the veins on the upper side, and with hairs in the axils of the veins on the under surface. There is a tree of this sort in the garden of the London Horticultural Society, which, in 1834, was 12 ft. high, after having been 8 years planted; but it has scarcely yet found its way into the nurseries.

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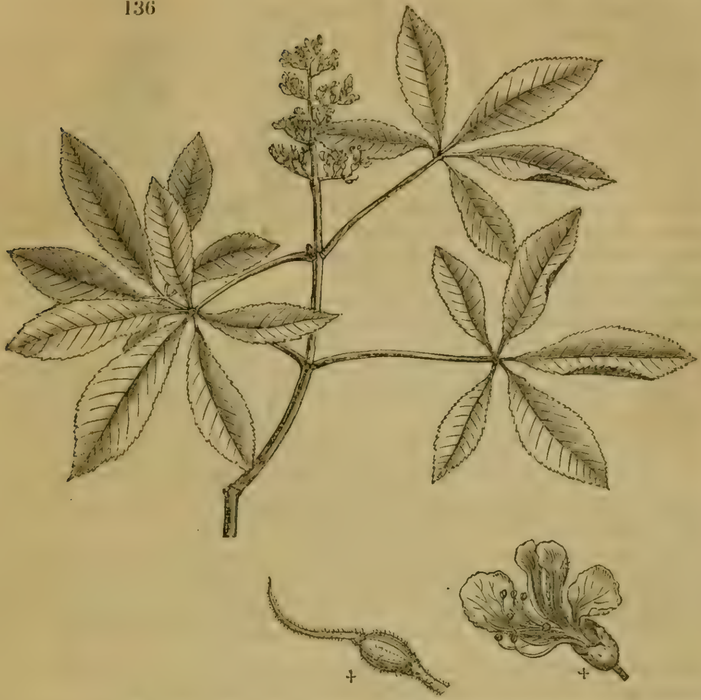


6. P. MACROCA'RPA *Hort.* The long-fruited Pavia.

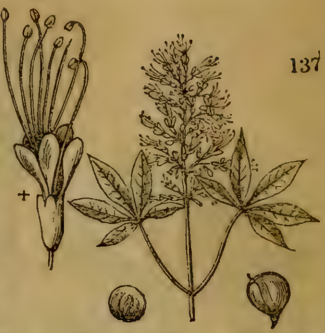
Synonymes. Æ'sculus Pàv*ia* macrocárpa *Lodd. Cat.*, 1830.; Pàv*ia* macrocárpa in the Hort. Soc. Gard.
Engraving. Our plate in Vol. II.

Distinct. Char. &c. This tree is upwards of 20 ft. high; and that in the garden of the London Horticultural Society, was, in 1834, 12 ft. high, after having been 8 years planted. This sort appears to us to be intermediate between some variety of Æ'sculus Hippocástanum and Pàv*ia* rùbra. The leaves are large, smooth on the upper surface, and shining. The flowers are nearly as large as those of the common horsechestnut, but with the petals less spreading, and of a pale red colour mixed with yellow. The branches are spreading and loose; and the whole tree has an open graceful appearance, quite different from that compactness of form and rigidity of branches which belong to most of the tree species and varieties both of Æ'sculus and Pàv*ia*. This sort can scarcely be said to be in cultivation in the nurseries, notwithstanding its claims to a place in every collection of ornamental trees.

7. P. MACROSTA`CHYA *Lois.* The long-racemed Pavia.

Identification. Lois. Herb. Amat.; Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 652.
Synonymes. Æ'sculus parviflòra *Walt.*; *Æ.* macrostàchya *Mx.* and *Hayne*; Pàv*ia* álba *Poir.*; Pàv*ia* edùlis *Poit. Arb. Fr.*, t. 88.; Pavier à longs E'pis, Pavier nain, *Fr.*; langährige Rosskastanie, *Ger.*
Engravings. Lois. Herb. Amat., t. 212.; Jacq. Ecl., t. 9.; Poit. Arb. Fr., t. 88.; Hayne Abbild., t. 26.; Colla Hort. Rip., t. 19.; and our *fig.* 137.

Spec. Char., &c. Stamens much longer than the corolla; racemes very long. Root stoloniferous. Flowers white. (*Dec. Prod.*, i. p. 598.) A shrub, with loose racemes of white flowers, with long projecting stamens, which give the spike a fine fringed appearance. A native of North America, on the banks of rivers, more particularly in Georgia, near the little town of St. Augustin;



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introduced in 1820; flowering in June, July, and August. The shoots are slender, spreading, and rooting at the joints where they happen to rest on the soil, with ascendent extremities. The tree comes into flower about a month or six weeks later than the other Æsculàceæ, and continues flowering, in the case of large plants on moist soil, for three months or longer, forming one of the greatest floral ornaments of the shrubbery, at a season when very few trees or shrubs are in flower. The fruit, which is small, seldom ripens in England; but in America it is said to be eaten, boiled or roasted: and M. Poiteau, accordingly, has included this species of Pàv*ia* in his list of fruit trees. (See *Bon Jard.*, 1835, p. 775.) When plants are to be raised from the nuts, he says they ought to be sown immediately; as, if kept exposed to the air, they shrink, and soon lose their vegetative power. The flowers are agreeably fragrant, and, as before observed, very ornamental; as are the spreading leaves, supported on long slender petioles; which, from their graceful disposition, combined with the feathery lightness of the racemes of flowers, give the whole plant an air of elegance quite different from that of any other species of dwarf pavia.

Statistics. The largest plant in the environs of London is at Syon; but it is not more than 12 ft. high. The plant of this species in the garden of the London Horticultural Society, 7 years planted, was, in 1834, 5 ft. high. In Berkshire, at White Knights, there are a great many plants which flower profusely the whole season, and among them is one, 25 years planted, which is 15 ft. high; in Lancashire, at Latham House, one, 12 years planted, 10 ft. high; in Suffolk, in the Bury Botanic Garden, 7 years planted, and 6 ft. high.; and, in Surrey, at Farnham Castle, several plants, 10 ft. high.

Commercial Statistics. Plants, in London, are 1*s*. 6d. each; at Bollwyller, 2 francs; and at New York, 25 cents, and nuts 50 cents per quart.

App. i. *Other Varieties of* Pàv*ia*.

In the Fulham Nursery are plants belonging to Pàv*ia*, or intermediate between Pàv*ia* and Æ'sculus, with the names, *Pàvia serràta* and *P. erécta*; and in the garden of the London Horticultural Society are plants marked *Æ sculus Pàvia flàva* var. In different nurseries, there are different names for the same variety; and, as almost all the sorts seed freely, and hybridise as freely, both with Æ'sculus, and with each other, new varieties may be expected in abundance. All the species and varieties are so truly beautiful, that this is not to be regretted, more especially if they are kept distinct, and so described and named as to indicate what they are, and to enable purchasers to be certain of obtaining them. It is almost unnecessary to observe, that all the most valuable varieties are best perpetuated by budding or grafting, and that, with regard to the pavia, as well as to the æsculus (see p. 469.), collectors ought always to see that the plants they purchase have been worked.

CHAP. XXIV.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER SAPINDÀCEÆ.

Of this order there is only one hardy ligneous plant in the country, namely, Kölreutèr*ia* paniculàta *Laxm.*; and the half-hardy species, which chiefly belong to the genus Dodonæ̀*a*, are not much cultivated even in green-houses.

GENUS I.

KÖLREUTE'R*IA* Laxm. THE KOLREUTERIA. *Lin. Syst.* Octándria Monogýnia.

Identification. Laxm. Acad. Petr. 16. p. 561.; L'Hérit. Sert., 18. t. 19.; Willd. Spec. Pl., 330.; Dec. Prod., 1. p. 616.; Don's Mill., 1. p. 672.
Synonyme. Sapíndus sp. *Lin. Fil.*
Derivation. In honour of *John Theophilus Kölreuter*, once Professor of Natural History at Carlsruhe, and celebrated for his researches on the pollen of plants.

Gen. Char., *&c.* *Calyx* of 5 sepals. *Petals* 4, each with 2 scales at the base. *Capsule* 3-celled, inflated. *Seeds* ovate-globose, the seed-coat penetrating into the seed, and occupying in the place of an axis the centre of the embryo, which is spirally convoluted. *Leaves* impari-pinnate, of many pairs of leaflets that are ovate, and coarsely toothed. *Flowers*, yellow, in panicles. (*Dec.*, *Prod.*, i. p. 616.)—A deciduous tree of the middle size.

¥ 1. K. PANICULA'TA *Laxm.* The panicled-*flowering* Kolreuteria.

Identification. N. D. Ham., t. 36.; Dec. Prod., 1. p. 616.; Hayne Dend. p. 45.; Don's Mill., 1. p. 672.
Synonymes. Sapíndus chinénsis *Lin. Fil. Supp.*, p. 221.; K. paullin*iöides* L'Hérit. Sert.; Savonnier paniculé, *Fr.*; rispentragende Kölreuterie, *Ger.*
Engravings. L'Hérit. Sert., 18. t. 19.; N. Du Ham., 1. t. 36.; Bot. Reg., t. 320.; and the plate of the tree in our Second Volume.

Description, History, &c. A tree of the middle size, with a loose irregular head, polygamous; that is, sometimes hermaphrodite, and sometimes unisexual: a native of China, and introduced in 1763. It was first cultivated at Croome, in Worcestershire, by the Earl of Coventry; and, being highly ornamental, both from its large compound leaves and fine loose terminal spikes of yellow flowers, it is to be found in most collections. Considering that it is a native of China, it is very hardy; the hermaphrodite plants not unfrequently ripening seeds in the neighbourhood of London. It has not only a very fine appearance when in flower, but also in autumn, when the tree is covered with its large bladdery capsules, and the leaves change to a deep yellow, which they do before they fall off. It was introduced into France in 1789, and is perfectly hardy in the neighbourhood of Paris, and also in the south of Germany. It is of the easiest culture in any common soil, and is readily propagated either by seeds or cuttings of the root or branches. In the London nurseries, it is generally propagated by seed. Though there are trees of this species of considerable size, both in Britain and on the Continent, we have never heard anything of the quality of its wood; which, from the prevalence of a yellow colour in its foliage and flowers, may probably be of a fine colour, and yield a yellow dye. The tree ought to be in every collection, on account of the beauty of its leaves, flowers, and fruit. In a young state, it is sometimes seen with a ragged head, owing to the young shoots dying back, after wet summers and cold autumns; but, as it gets older, it makes shorter shoots, and these have more time to ripen. Accordingly, old trees have generally much handsomer heads than young ones. The general contour of these heads is hemispherical, as may be seen by the fine old specimens at Kew, in the Fulham Nursery, and in the Jardin des Plantes at Paris.

Statistics. In the environs of London, the largest tree is at Ham House, where it is 42 ft. high, and the diameter of the trunk, at 1 ft. from the ground, is 16 in.; at Kew, it is 30 ft. high; in the Fulham Nursery, 25 ft.; at Fulham Palace, 17 years planted, it is 20 ft. high; at Syon, 20 ft high; in Berkshire, at White Knights, 25 years planted, and 23 ft. high; in Hertfordshire, at Cheshunt, 6 years planted, and 11 ft. high; in Staffordshire, at Alton Towers, 10 years planted, and 10 ft. high; in Yorkshire, in the Hull Botanic Garden, 12 years planted, and 8 ft. high. In Scotland, in Lawson's Nursery, Edinburgh, 4 years planted, and 4 ft. high; in Sutherlandshire, at Dunrobin Castle, 20 ft. high. In Ireland, in the environs of Dublin, at Castletown, 15 ft. high; in the Glasnevin Botanic Garden, 20 years planted, and 12 ft. high; at Terenure, 10 years planted, and 6 ft. high; at Oriel Temple, 25 years planted, and 30 ft. high. In France, in the Jardin des Plantes, 30 years planted, and 25 ft.

high; at Sceaux, 10 years planted, and 20 ft. high; in the Toulon Botanic Garden, 20 years planted, and 12 ft. high; at Nerrières, near Nantes, 20 years planted, and 15 ft. high. In Austria, in the University Botanic Garden at Vienna, 25 years planted, and 25 ft. high.

Commercial Statistics. Plants, in London, cost from 1*s.* to 2*s.* 6*d.* each; at Bollwyller, 1 franc each; at New York, ?.

App. I. *Half-hardy ligneous Species of Sapindàceæ.*

Dodonæ`a, a genus of plants named in honour of *Rambrot Dodoens*, author of *Historia Plantarum*, who died in 1585, consists of nearly 30 species of green-house plants, which are chiefly natives of new Holland, though some of them are from the East and West Indies and South America. They are all shrubs, with exstipulate, simple, or pinnate leaves, and small greenish yellow flowers. They are not showy, but they are interesting to the botanist, as illustrating this order, and also on account of the ramified venation of their leaves.

❀ *D. viscòsa* L. is a native of the Caribbee Islands, where it is a shrub growing to the height of 6 ft. It has been in the country since 1690, and is occasionally to be met with in green-houses. It is highly probable that it would stand our winters against a wall, with sufficient protection.

❀ *D. alternàta* Cunning. is a native of New Holland, and has been in cultivation since 1824.

❀ *D. jamaicénsis* Dec., D. angustifòlia *Swz.*, D. viscòsa *Cav.*, is a native of the colder parts of Jamaica, where it grows to the height of 6 ft.; and, being very sour and bitterish in all its parts, it is known there by the name of switch sorrel. It has been in our green-houses since 1810.

❀ *D. salicifòlia* Dec., D. angustifòlia *Lam.*, is in cultivation in French gardens under the name of *bois de reinette*, and has been in our green-houses since 1820. The leaves are very narrow, and they are sweet-scented. It is supposed to be a native of New Holland.

❀ *D. laúrina* Sieb., *D. triquetra* Bot. Rep. t. 231., *D. cuneàta* Smith, and *D. aspleniifòlia* Rudge, are all natives of New Holland, occasionally to be met with in green-houses. They are generally cultivated in loam and peat, or in any light soil; and, when they are tried against a conservative wall, care should be taken that they are not overpowered at the root, or at the top, by other plants.

CHAP. XXV.

OF THE HALF-HARDY LIGNEOUS PLANTS OF THE ORDER MELIA`CEÆ.

♆ 1. *Mèlia* Azedaràch *L.*, the bead tree, or Indian lilac, (*fig.* 138.) is an old inhabitant of British green-houses, and well known to all those who have travelled in Italy. The word *Mèlia* is derived from *mĕlia*, the Greek name for the manna ash (from *mĕli*, honey); from a fancied resemblance between the leaves and those of the ash: and *Azedaràch* from an Arabic word signifying a poisonous plant; the berries of the melia being formerly supposed to be poisonous. Its foliage and its spikes of flowers are large, the plant being remarkably showy when fully developed; and it is by no means tender. It grows in its native country, Syria, to the height of 40 ft.; and there are trees of nearly that height in the neighbourhood of Naples. It is planted as an ornamental tree in Spain, Portugal, Italy, and the south of France. There are trees of it in the public walks at Montpelier, at Toulon, and in various cities in Italy. In the southern states of North America, more particularly in Carolina, it is planted near houses, and known there by the name of the pride of India; a name also given to the Lagerstrœ`mia Indica. In Greece, and along the shores of the Grecian Archipelago and the Mediterranean, the *Mèlia Azedaràch* is always planted in the area of monasteries for the sake of the nuts, contained in its fruits, which are made into rosaries by the monks; and hence its name of the bead tree. The fruit, which is of the size of a cherry, but more cylindrical, and of a pâle yellow colour when ripe, was said by the Arabian physician Avicenna to be poisonous; and the pulp was mixed with grease, for the purpose of killing rats and dogs. According to Royle, however, the fruit can only be considered poisonous when used in large doses. It is used in Java as a vermifuge. The nuts, which are of a brown colour, are bored, and, as already stated, strung as beads in Catholic countries. In Britain, the tree frequently flowers in green-houses, and sometimes ripens seeds: it has been tried in the open air, both as a standard and against a wall. It has stood through several winters, in the open air, at Biel, in East Lothian; and at Bungay, in Suffolk, a plant, which had been 9 years planted against a wall, was, in 1834, $9\frac{1}{2}$ ft. high, the trunk 9 in. in diameter, and had branches extending 18 ft. on each side of the trunk. One, raised from seed in 1828, which has stood ever since against a wall in our garden at Bayswater, protected by a glass case during winter, flowered in 1835. In the warmest parts of Devonshire and Cornwall, it might be treated as a standard tree. Plants are generally raised from seeds; and they may be procured in the London nurseries at 2*s.* each; at Bollwyller, for 1 franc and 50 cents; and at New York, for 25 cents a plant, and 1 dollar a quart of seeds.

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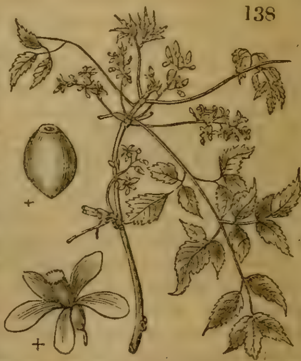

♆ 2. M. *sempervirens* Swz., *the evergreen Melia*, or Bead Tree, known in the West Indies by the name of the Indian lilac, is said to be a tree growing to the height of about 25 ft. It has been in our green-houses since 1656; and is by some considered as only a variety of *M. Azedaràch*.

‡ 3. M. *austràlis* Swt. is a native of New Holland, introduced in 1810, and said to grow, in its native country, to the height of 20 ft.

‡ 4. M. *japónica* G. Don is a green-house species, growing 30 ft. high, which has not yet been introduced; and *M.* Buckàyun *Royle* is a species of which little seems to be known.

All the species of Mèlia, being deciduous trees, without visible buds, are peculiarly eligible for growing against a conservative wall; because, by the application of heat artificially, and by preventing (which can be done by thatching the ground) the rain from falling on the soil under the trees at the end of summer, the wood may be ripened to such a degree as to enable it to stand our winters with very little or no protection.

CHAP. XXVI.

OF THE HARDY LIGNEOUS PLANTS OF THE ORDER *VITA*ˋ*CEÆ.*

THALAMIFLOROUS. (*H. B.*) Calyx small. Petals 4 or 5, inserted on the outside of a disk surrounding the ovarium; in æstivation, turned inwards at the edge in a valvate manner. Stamens equal in number to the petals, inserted upon the disk that surrounds the ovarium; filaments distinct or slightly cohering at the base. Anthers versatile. Ovarium 2-celled. Fruit a pulpy berry. Seeds 4 or 5, fewer by abortion; embryo erect; albumen hard. Climbing shrubs, with tumid separable joints. Leaves with stipules. Properties, acidity and sugar. (*Lindl. Introd. to N. S.*, and *Key.*) The species are trailing and climbing shrubs, and they include the grape vine, which may be considered as the type of the order. " The genus *V*itis is found in the equinoctial parts of the Old and New Worlds, extending into both the temperate zones; as, southwards, to the Cape of Good Hope and New Holland; and, northwards, to Japan and North America, as well as from the plains of India to the defiles of Caucasus." (*Royle*, *Illustr.*, p. 144.) The genera which contain hardy species are two, which are thus distinguished:—

*V*IˋTIS. Calyx 5-toothed. Style wanting. Berry, 2-celled, 4-seeded.
AMPELOʹPSIS. Calyx nearly entire. Petals 5. Stamens 5. Style 1, crowned by a capitate stigma.
*C*Iʹ*SSUS*. Calyx nearly entire. Petals 4. Stamens 4. Ovary 4-celled.

GENUS I.

*V*IˋTIS *L.* THE GRAPE VINE. *Lin. Syst.* Pentándria Monogýnia.

Identification. Lin. Gen., 284; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 695.
Synonymes. Giud, *Celtic*; Vid, *Span.*; Vigne, *Fr.*; Wein, *Ger.*

Gen. Char. Flowers hermaphrodite, diœcious or triœcious. *Calyx* commonly 5-toothed. *Petals* 5, cohering at the top, separating at the base, and deciduous. *Stamens* 5.—Climbing shrubs, deciduous, with leaves simple, lobed, or serrated, sometimes compound, and small greenish yellow flowers in thyrsoid racemes. (*Dec. Prod.*, i. p. 633.) The species are deciduous climbers, one of which has long been celebrated in the Old World as the grape vine; and all the others are natives of North America. The varieties of the first species have been described at length by Du Hamel in France, Don Roxas de Clemati in Spain, and Sickler in Germany; and the species and varieties of North America by Rafinesque.

‡ 1. *V.* VINIʹFERA *L.* The wine-bearing Vine.

Identification. Lin. Spec., 293.; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 695.
Synonymes. Vigne, *Fr.*; gemeiner Weinstock, *Ger.*
Engravings. Duh. Arb. Fr., 2. t. 16.; Jacq. Ic., 1. p. 53.; and our *fig.* 139.

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Spec. Char., &c. Leaves lobed, toothed, sinuated, or serrated, naked or downy. (*Dec. Prodrom.*, i. p. 633.) A deciduous climber, in cultivation from the remotest period of history, in the warmest parts of the temperate zones of the Old World, and of which there are innumerable varieties.

Geography and History. The grape vine is generally considered to be a native of Persia; and Dr. Sickler, in the first volume of his *Geschichte der Obstcultur*, has given an interesting account of its migration to Egypt, Greece, and Sicily. From Sicily, which is generally considered to be one of the oldest seats of civilisation in the western hemisphere, the vine is said to have found its way into Italy, Spain, and France. It is supposed to have been cultivated in the latter country in the time of Antoninus, and to have been introduced into Britain by the Romans, but during what reign is uncertain. There were vineyards, however, in England, according to the venerable Bede, in the year, A. D. 280. The vine has been for ages in a wild state, in the woods and hedges of Provence, Languedoc, and Guienne, in France, where it differs from the cultivated plant, in having smaller and more cottony leaves, and very small fruit, rather austere than sweet. These wild vines, which were called by the ancients labrusca, are still known, in the south of France, by the names of lambrusco, and lambresquiero. (*N. Du Ham.*) The history of the vine as a fruit shrub, and all that relates to its varieties and their propagation and culture, will be found given at length in our *Enclyclopædia of Gardening;* and we shall here only notice those varieties which we think deserving of introduction, as ornamental and fragrant-flowered standard climbers, for training against a prop in the free ground, in a British arboretum; or to be trained against a wall, in the arboretums of colder countries. Plants, in the European nurseries, are procurable at 1*s.* or 1 franc each; and at New York, for 37½ cents each.

⸸ V. *v.* 2 *fòliis incànis.* *The hoary-leaved Grape Vine.* Miller's Grape, or Miller's black Cluster Grape. — Leaves almost entire, small, woolly, and whitish. Fruit round, small, in compact bunches, black. This variety is selected on account of the whiteness of its leaves.

⸸ V. *v.* 3 *fòliis rubescéntibus.* *The rubescent-leaved Grape Vine.* The Claret Grape; Tenturier, *Fr.* (*N. Du Ham.*, var. 75., not Clairette *Du Ham.*, var. 12.) — The leaves are larger than those of the preceding variety, and more lobed and notched: in the autumn, before they die off, they change to a deep claret colour, in which state they are highly ornamental.

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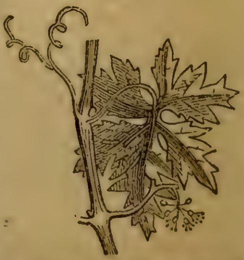

⸸ V. *v.* 4 *apiifòlia* Hort. *The Parsley-leaved Grape Vine.* Crotal, *Fr.* (*fig.* 140.) — The leaves are beautifully laciniated, middle-sized, and the fruit black. This variety is by some considered as a species, and, as such, is known as *V.* laciniòsa *L.* It forms a very handsome climbing shrub, which has been in cultivation for its fruit since 1648.

♁ 2. *V.* LABRU'SCA *L.* The wild Vine, *or Fox Grape.*

Identification. Lin. Spec., 293.; Dec. Prod., 1. p. 634.; Don's Mill., 1. p. 711.
Synonymes. *V.* taurìna *Walt.*; filziger Wein., *Ger.*
Engravings. Plum. Icon., t. 259. fig. 1.; Jacq. Schœn., t. 426.; and our *fig.* 141.

141

Spec. Char., &c. Sexes diœcious or polygamous. Leaves heart-shaped, rather 3-lobed, acutely toothed beneath, and the peduncles tomentose and rather rusty. (*Dec. Prod.*, i. p. 634.) A tendriled climber, growing to about the same height as the common vine, but with much larger leaves (which are scarcely lobed, and downy, especially when young), and berries which are large and black, with a rough acid flavour, but are, nevertheless, eatable in a wild state, and much improved by cultivation. The whole plant has a disagreeable foxy smell, whence the name. "The fruit is, according to Professor Bigelow, large, purple, and pleasantly tasted; while Torrey remarks that it has a strong disagreeable flavour in a wild state, but that, when cultivated, it is as pleasant as any of the varieties of *V.* vinífera." (*Hook. Flor. Bor. Amer.*, p. 115.) There are two varieties growing in the vineyards of North America; one with white berries, and the other with red ones. From both of the varieties, and from the species, an excellent wine is made; which, when kept for five or six years, resembles Moselle. In America, the varieties have been much improved by culture; and, according to Rafinesque (*Med. Fl.*, i. p. 121.), greatly increased in number by culture, with a view to the production of wine. In Britain, the plant can only be considered as ornamental; and, from the largeness of its foliage and fruit, it forms a very distinct species of *Vitis.* A plant of the red-fruited variety, in the garden of the London Horticultural Society, placed against a wall with a west aspect, ripens fruit every year, which we have tasted, and found by no means disagreeable. We have also had some bottles of the wine sent us from America, which was not inferior to the weaker sorts of Rhenish wines. Possibly this plant might deserve cultivation on the Continent, with a view to the mixing of the fruit with that of the varieties of the grape vine, in making wine; since austere varieties of apple and pear, mixed with sugary varieties, are found to make the best kinds of cider and perry. Plants of this species, in the London nurseries, are 1*s.* 6*d.* each; at Bollwyller, 1 franc; and at New York, the species and its varieties are 37½ cents each.

♁ 3. *V.* ÆSTIVA`LIS *Michx.* The Summer Vine, *or Grape Vine.*

Identification. Michx. Fl. Bor. Amer., 2. p. 230.; Dec. Prod., 1. p. 634.; Don's Mill., 1. p. 711.
Synonymes. *V. L*abrúsca *Walt. Fl. Car.*, 242.; *V.* vulpìna *Willd. Spec.*, p. 1181.; and E. of Pl., No. 2860.
Engravings. Jac. Hort. Schœn., t. 425.; E. of Pl., 2860.; and our *fig.* 142.

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Spec. Char., &c. Sexes diœcious, or polygamous. Leaves broadly heart-shaped, with from 3 to 5 lobes; the under surface of the young ones invested with a cottony down; of the adult ones, smooth. Racemes fertile, oblong. Berries small. (*Dec. Prod.*, i. p. 634.) A native of North America, and abounding there in woods and wastes, from Virginia to Carolina. The berries are small, of a dark blue colour, finely covered with bloom, not disagreeable to the taste, and made into a very tolerable wine by the inhabitants. It was introduced into England in 1656, but is not very common in collections.

♁ 4. *V.* SINUA`TA *G. Don.* The scallop-*leaved* Vine, *or Summer Grape Vine.*

Identification. Don's Mill., 1. p. 711.
Synonymes. *V.* æstivàlis var. sinuàta *Ph. Flor. Amer. Sept.*, 1. p. 169.; *Dec. Prod.*, 1. 634. "Probably the *V. l*abruscöides of *Muhl. Cat.*, 27." (*G. Don.*)

Spec. Char., &c. Sexes diœcious or polygamous. Leaves sinuately palmate, coarsely toothed, with rhomboid recesses; young ones covered beneath with cobwebby rusty down; adult ones smooth. (*Don's Mill.*, i. p. 711.) Found in woods from Virginia to Carolina, along with the two preceding species, of the last of which, notwithstanding Mr. G. Don's opinion, we think this only a variety. The berries are dark blue, agreeable to eat, and a very good wine is made from them. Introduced into England in 1656, but not much cultivated.

5. *V.* CORDIFO`LIA *Michx.* The heart-*shape*-leaved Vine, *or Chicken Grape.*

Identification. Michx. Fl. Bor. Amer., 2. p. 231.; Dec. Prod., 1. p. 654.; Don's Mill. 1. p. 711.
Synonymes. *V.* incìsa *Jacq. Schœn.*, t. 427.; *V.* vulpìna *Lin Spec.*, p. 293., *Walt. Flor. Car.*, 243.
Engravings. Jacq. Schœn., t. 247.; E. of Pl., 286.; and our *fig.* 143.

143

Spec. Char., &c. Sexes diœcious or polygamous. Leaves heart-shaped, acuminate, toothed in the mode of incisions, smooth on both surfaces. Racemes loosely many-flowered. Berries small, greenish, ripened late. (*Dec. Prod.*, i. p. 634, 635.) Found wild from Canada to Florida, on the edges of rivers and in woods, where it is called the winter grape, probably from the late ripening of the fruit; and chicken grape, perhaps from the very small size of the berries. Dr. Torrey considers this to be the true *V.* vulpìna of Linnæus, on account of its glabrous leaves. (*Hook.*) Introduced in 1806. Plants of it (but whether male or female, we are uncertain) are in the arboretum of Messrs. Loddiges, price 1*s.* 6*d.* each.

6. *V.* RIPA`RIA *Michx.* The river-side, *or sweet-scented,* Vine.

Identification. Michx. Flor. Bor. Amer., 2. p. 821.; Dec. Prod., 1. p. 635.; Don's Mill., 1. p. 711
Synonymes. *V.* odoratíssima *Donn Hort. Cant.*, and *Lodd. Cat.*; Vigne de Battures, *Amer.*
Engravings. Bot. Mag., t. 2429.; E. of P., 2862.; and our *fig.* 144.

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Spec. Char., &c. Leaves heart-shaped, shallowly 3-cleft, toothed in the mode of incisions and unequally. Footstalk, and the margin of the nerves, pubescent. (*Dec. Prod.*, i. p. 635.) A native of North America, from Pennsylvania to Carolina, on the gravelly shores of islands and banks of rivers. "Extending to the south end of Lake Winipeg, in lat. 520°." (*Richardson*, in *Hook.*) Dr. Hooker observes that some of his specimens of this plant have the leaves so slightly lobed, that he scarcely knows how they are to be distinguished from *V.* vulpìna (our No. 3.). Female plants are very seldom found north of the Potowmac river, though the male extends very far beyond it. The flowers have an exquisitely sweet smell, somewhat resembling that of mignonette. The female plant is in the arboretum of Messrs. Loddiges, where its shoots extend to the length of 20 ft.

7. *V.* ROTUNDIFO`LIA *Michx.* The round-leaved Vine, *or Bullet Grape.*

Identification. Michx. Flor. Bor. Amer., 2. p. 231.; Dec. Prod., 1. p. 635.; Don's Mill., 1. p. 711.

Spec. Char., &c. Sexes diœcious or triœcious. Leaves between heart-shaped and kidney-shaped, toothed in rather an equal manner, shining on both surfaces. Racemes composed of several little heads of flowers. Berries of a deep blue colour. (*Dec. Prod.*, i. p. 635.) Found in North America, from Virginia to Florida, on river sides, and on islands. The berries are as large as those of the common muscadine grape, by which name it is sometimes called: they are agreeable to eat. Introduced in 1806, but not often met with in collections. There is a plant in the garden of the London Horticultural Society.

8. *V.* CARIBÆ`A *Dec.* The Caribean Vine.

Identification. Dec. Prod., 1. p. 634.; Don's Mill., 1. p. 711.
Synonyme. *V.* índica *Swz. Obs.*, 95., *Poir. Dict.*, 8. p. 607.
Engraving. Sloane Hist., 2. p. 104. t. 210. fig. 4.

Spec. Char., &c. Sexes diœcious or triœcious. Leaves heart-shaped, acuminate, toothed with acute and rather projecting teeth; rather glabrous above, beneath, and the peduncles, tomentose. (*Dec. Prod.*, i. p. 634.) Flowers small and white. Berries small, brownish green, watery and acid, but eatable. This plant produces a great quantity of clusters of small black grapes, of an austere taste; but they would, doubtless, make a good red wine. When it grows luxuriantly, as it generally does on the higher woody lands of Jamaica, it is so full of juice, that a piece of a shoot, about 3 ft. long, will yield near a pint of clear tasteless water, which has saved the lives of many persons who have wandered long in the woods without any other refreshment of a liquid sort. For this reason, the plant is called, in Jamaica, water withe. According to Sloane, the fruit is red or deep purple, the size of currants, and agreeably acid, as well as astringent. (*Don's Mill.*, i. p. 711.) Introduced in 1800, but seldom to be met with. Not in the London Horticultural Society's Garden, nor in the collection of Messrs. Loddiges.

App. i. *Other hardy or half-hardy Species of* Vìtis.

Dr. Wallich has enumerated upwards of fifty species of *V*ìtis, natives of India. Of these V. *Wállich*i *Dec.*, a native of Nepal, was introduced in 1822, and treated as a stove climber; but it will probably be found half-hardy. V. *glabràta* Roth is a native of the East Indies, introduced in 1819. It resembles in foliage *V.* vulpìna, and is considered half-hardy. V. *índica* L. (*fig.* 145.) was introduced in 1692, and is generally treated as a stove climber; but, being deciduous, if its wood could be ripened in sufficient time, it might stand our winters against a conservative wall. The same may be said of V. *cæ'sia* Hort. Trans., a native of Sierra Leone, introduced in 1822. There are numerous other Indian and some Japan species, which remain to be introduced. There are also some species natives of South America, described by Humboldt, of which very little is known; but four of them, which are described in Don's *Miller*, are considered to be hardy.

Of North American species and varieties no fewer than 130 have been described by Professor Rafinesque in his *Medical Flora*, already quoted, and in his *Monograph of American Vines.* (See *Gard. Mag.*, vol. viii. p. 248.)

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GENUS II.

AMPELO'PSIS *Michx.* THE AMPELOPSIS. *Lin. Syst.* Pentándria Monogýnia.

Identification. Michx. Fl. Bor. Amer., 1. p. 159.; Dec Prod., 1. p. 632.; Don's Mill., 1. p. 694.
Synonymes. *V*ìtis sp., and *C*íssus sp.
Derivation. *Ampelos*, a vine, and *opsis*, resemblance; similarity in the habits of the species.

Gen. Char., *&c.* *Calyx* almost entire. *Petals* 5, falling off separately. *Stigma* capitate. *Ovary* not immersed in a disk, including 2—4 ovules. (*Kunth*, *Nov. Gen. Am.*, 5. p. 222., quoted in *Dec. Prod.*, i. p. 632.)—A genus intermediate between *C*íssus and *V*ìtis. (*Dec. Prod.*, i. p. 632.) The species are found in North America, in the north of Africa, in China, and in the Himalaya. They are all climbing shrubs, mostly deciduous, of the easiest propagation and culture: some of them, as the A. *h*ederàcea, are very ornamental.

⚘ 1. A. CORDA'TA *Michx.* The cordate-*leaved* Ampelopsis.

Identification. Michx. Bor. Amer., 1. p. 159.; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 694.
Synonymes. Císsus Ampelópsis *Pers. Syn.*, 1. p. 142.; *V*ìtis indivìsa *Willd. Baum.*, 538.

Spec. Char., *&c.* Leaves heart-shaped, acute, toothed, indistinctly 3-lobed; the nerves villous beneath. Racemes doubly bifid. (*Dec. Prod.*, i. p. 633.) Found in North America, from Pennsylvania to Carolina, among hedges, and by the sides of rivers. The flowers are reddish, and produced in May and June; and the berries are of a pale red colour. Introduced in 1803, but rare in British collections.

⚘ 2. A. HEDERA'CEA *Michx.* The Ivy-like Ampelopsis, *or Five-leaved Ivy.*

Identification. Michx. Fl. Bor. Amer., 1. p. 160.; Dec. Prod., 1. p. 633.; Don's Mill, 1. p. 694.
Synonymes. Hédera quinquefòlia *Linn. Spec.*, 292.; Vìtis quinquefòlia *Lam. Ill.*, No. 2815.; Císsus hederàcea *Ph. Fl. Amer. Sept.*, 1. p. 170.; Císsus quinquefòlia *Hort. Par.*; Vìtis hederàcea *Willd. Spec.*, p. 1182.; Ampelópsis quinquefòlia *Hook. Fl. Bor. Amer.*, 1. 114.; Vigne Vierge, *Fr.*; Jungfern Reben, or wilder, Wein, *Ger.*
Engravings. Cornut. Canad., t. 100.; E. of Pl., 2868.; and our *fig.* 146.

Spec. Char. &c. Leaves digitate, of from 3 to 5 leaflets, that are stalked, oblong, toothed with mucronated teeth. Racemes dichotomously corymbose. (*Dec. Prod.*, i. p. 633.) A vigorous-growing climber, or trailer, rooting at the joints; a native of North America, from Pennsylvania to Carolina, in woods on the Alleghany Mountains. It was introduced into England in 1629; and, from its rapid growth, and the beauty of its foliage (especially in autumn, when it changes to a deep rich red), it soon became popular all over Europe. It grows freely in the smoke of cities; and in London, and more especially in Paris, it may be found reaching to the tops of houses from 50 ft. to 60 ft. in height. In fine seasons, it produces flowers, which are of a greenish purple colour, succeeded by corymbs of small black fruit. Plants, in the London nurseries, cost 1*s.* each, and seeds 1*s.* a packet; at Bollwyller, plants are 1 franc each; at New York, 15 cents.

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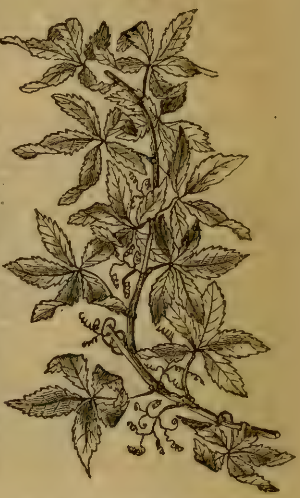

⚘ 3. A. (*H.*) HIRSU'TA *Donn* (*Hort. Cant.*). The hairy-*leaved* Ampelopsis.

Identification. Donn Hort. Cant.; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 694.
Synonymes. Císsus hederàcea var. hirsùta *Ph. Fl. Amer. Sept.*, 1. p. 170.

Spec. Char., &c. Leaves pubescent on both surfaces. A native of the Alleghany Mountains, introduced in 1806, and, in our opinion, likely to be only a variety of A. hederàcea.

⚘ 4. A. BIPINNA'TA *Michx.* The bipinnate-*leaved* Ampelopsis.

Identification. Michx. Fl. Bor. Amer., 1. p. 160.; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 694.
Synonymes. Vìtis arbòrea *Willd. Spec.*, 1. p. 1183.; Císsus stàns *Pers. Syn.* 1. p. 183., *Ph. Fl. Amer. Sept.*, 1. p. 170.
Engraving. Pluk. Mant., p. 412. fig. 2.

Spec. Char., &c. Leaves bipinnate, smooth; leaflets cut in a lobed manner. Racemes pedunculate, almost doubly bifid. Berries globose and cream-coloured. (*Dec. Prod.*, i. p. 633.) A deciduous shrub, with slender stems, but scarcely a climber; a native of Virginia and Carolina, in shady woods. It was introduced in 1700; and, being much admired for the beauty of its foliage, is not uncommon in collections. Plants, in the London nurseries, cost 1*s.* 6*d.* each; at Bollwyller, ?; at New York, 50 cents.

App. i. *Anticipated hardy Species of Ampelópsis.*

⚘ *A. bótrya* Dec. is a native of the eastern coast of Africa, with cordate leaves, reddish flowers, and berries black and eatable. It is described by Loureiro, but has not yet been introduced.

⚘ *A. heterophýlla* Blume, Vìtis javánica *Spreng.*, a native of Java, has palmate leaves, and is considered as likely to endure our winters in the open air.

⚘ *A. capreolàta* G. Don, Vìtis capreolàta *D. Don*, is a native of Nepal, and resembles A. hederàcea in every particular, except that it is one half smaller. Mr. Royle has given a figure of this plant (*Illus.*, i. 26.), and observes that he considers it the same as the Vìtis hederàcea of Dr. Wallich. The genera Vìtis, Ampelópsis, and Císsus are so mixed together in the older botanical works, that there may probably be some of the above names that belong to Vìtis or Císsus, and some names under Vìtis and Císsus which belong to Ampelópsis.

GENUS III.

*C*I'SSUS *L.* THE CISSUS. *Lin. Syst.* Tetrándria Monogýnia.

Identification. Lin. Gen., No. 147.; Dec. Prod., 1. p. 627.; Don's Mill., 1. p. 689.
Derivation. *Kissos* is the Greek name of the ivy, which these plants in some manner resemble.

Gen. Char., &c. *Calyx* almost entire. *Petals* 4, falling off separately. *Ovary* 4-celled. *Berry* 1—4-seeded. (*Dec. Prod.*, i. p. 630.) Climbing plants, chiefly ligneous, with simple, trifoliate, or palmate leaves, and cymes or corymbs of small flowers, greenish, yellow, and sometimes purplish. Above 70 ligneous species are described in Don's *Miller*, a few of which are green-house plants, and already introduced into British gardens.

a 1. C. *orientàlis* Lam., figured in *Lam. Ill.*, t. 84. fig. 2., is a native of the Levant, and, according to Sweet's *Hortus Britannicus*, was introduced in 1818. It is a green-house climber; and, being considered tolerably hardy, it might be tried against a conservative wall.

a 2. C. *quinàta* Ait., a native of the Cape of Good Hope, introduced in 1790, has palmate leaves, and is treated as a green-house plant.

a 3. C. *antárctica* Vent. Choix, t. 21., and our *fig.* 147, is a native of New Holland, whence it was introduced in 1790, and is commonly called the kangaroo vine. It has large, cordate, serrated, smoothish leaves, and but seldom, if ever, flowers in our green-houses. It is, probably, as hardy as other New Holland shrubs.

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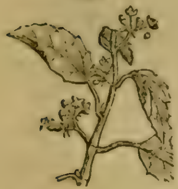

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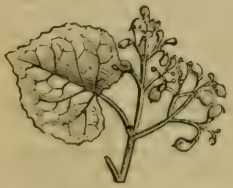

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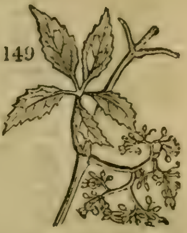

a 4. C. *capénsis* Willd. is a native of the Cape of Good Hope, introduced in 1792.

a C. *vitigìnea*, (*fig.* 148.), C. *quinquefòlia* (*fig.* 149.), and, probably, other species now kept in our green-houses, and some even in our stoves, might, probably, prove half-hardy, if judiciously treated.

CHAP. XXVII.

OF THE HALF-HARDY LIGNEOUS PLANTS OF THE ORDER GERANIA`CEÆ.

We introduce this order chiefly for the sake of recommending a trial of some of the hardier varieties of the common pelargonium; the roots of which, at least, will live through the winter at the bottom of a wall, if the soil be kept quite dry during that season, and covered with straw. The following sorts may, perhaps, be chosen for a trial, in preference to some others: — P. Barringtònii, cucullàtum (*fig.* 150.), macránthon, megalánthon, calamistràtum, quercifòlium, peltàtum, zonàle (*fig.* 151.), Bentinck*iànum*, inquinans (*fig.* 152.).

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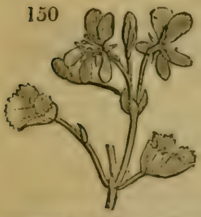

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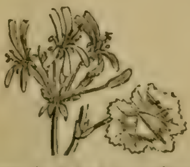

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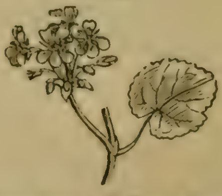

CHAP. XXVIII.

OF THE HALF-HARDY LIGNEOUS PLANTS OF THE ORDER ZYGOPHYLLA'CEÆ.

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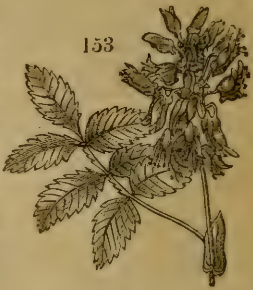

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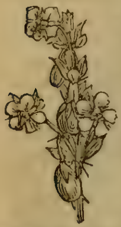

Meliánthus màjor L. (*Bot. Reg.*, t. 45., and our *fig.* 153.) is a well-known suffruticose green-house plant, admired for the beauty of its glaucous leaves, and the sharp and remarkable notching of its leaflets. It has stood out in many situations in the neighbourhood of London, at the base of a wall, protected only during the most severe weather. It has even flowered in the open air in some situations. In the Oxford Botanic Garden, this plant has stood out for many years at the base of a south wall, and also at the base of an east wall, and has flowered in both situations, the last time in 1834. In Devonshire, at Kingsbridge, in the garden of the Moult, it has stood out for many years as a bush; and, in November, 1835, was between 10 ft. and 12 ft. high.

Zygophýllum sessilifòlium L. (figured in *Bot. Mag.*, t. 2184. and our *fig.* 154.), a native of the Cape of Good Hope, and *Z. Morgsàna L.*, also from the Cape, both green-house plants, which have been upwards of a century in this country, and which are interesting for their peculiar foliage and yellow flowers, may, with other ligneous Cape species, deserve a trial in favourable situations against a conservative wall.

CHAP. XXIX.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER *R*UTA'CEÆ.

In this order there are two genera, *R*ùta and Aplophýllum, which contain some undershrubs, hardy or half-hardy. They are thus contradistinguished: —

*R*U'TA *L.* Calyx 4-parted. Stamens 8. Styles 4, connected. Ovary almost stalked. Capsule 4-lobed, 4-celled. (*Don's Mill.*, i. p. 775.) Leaves compoundly divided.

APLOPHY'LLUM *Andr. Juss.* Calyx 5-parted. Stamens 10. Styles 5, connected. Capsule 5-lobed, 5-celled. (*Don's Mill.*, i. p. 775.) Leaves undivided.

GENUS I.

*R*U'TA *L.* THE RUE. *Lin. Syst.* Octándria Monogýnia.

Identification. Tourn. Inst., t. 133.; Lin. Gen., 523.; Dec. Prod., 1. p. 709.; Don's Mill., 1. p. 778.
Synonymes. Rue, *Fr.*; Raute, *Ger.*

Derivation. According to De Theis, incapable of explanation; but the same in all the most ancient languages; namely, *ruz* in Runic; *rude, rata, ruta,* or *rutu,* in Anglo-Saxon; *rutiza* in Sclavonian; *ruta* in Italian and Latin; *ruda* in Spanish; *rutē* in Greek; said to be from *ruō,* to flow, in allusion to some expelling qualities of the plants.

✿ 1. *R.* GRAVEˋOLENS *L.* The heavy-scented, *or common,* Rue.

Identification. Lin. Spec., 548.; Dec. Prod., 1. p. 710.; Don's Mill., 1. p. 778.
Synonymes. *R.* horténsis *Mill. Dict.*, No. 1.; Rue, *Fr.*; Gartenraute, *Ger.*
Engravings. Du Ham. Arb., 2. t. 61.; Woodv. Med. Bot., t. 37.; Pluk. Icon., t. 332; E. of Pl., 5886.; and our *fig.* 155.

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Spec. Char., &c. Leaves supra-decompound; the lobes oblong, the terminal one obovate. Petals entire or toothed. (*Dec. Prod.*, i. p. 710.) A beautiful evergreen undershrub, native of the south of Europe, in sterile places, and cultivated in British gardens from time immemorial. It flowers from June to September, and ripens seeds.

Geography, History, &c. The rue may be found in a wild state in the south of France, in Spain, and in the north of Italy. We have gathered it, growing along with Psoràlea bituminòsa, on the rocks about Nice, and along the coast near Genoa. The rue was first recorded by Turner in 1562; but, from its reputed medicinal qualities, and its use in religious ceremonies, it was probably introduced into England by the monks, many centuries before.

Properties and Uses. "The rue and its allies," Professor Burnet observes, "are bitter stimulating plants, with a strong but rather unpleasant smell, and a hot bitter taste. *R.* gravèolens is, indeed, so acrid, that the bruised leaves will excoriate the lips and nostrils, and inflame the skin, if applied as a cataplasm. Rue was much esteemed in ancient medicine: Hippocrates commends it: for many ages it was considered a preventive of contagion, and called the herb of grace; and, in later times, Boerhaave observes that the greatest commendations he can bestow upon it fall short of its merits. 'What medicine,' says he, 'can be more efficacious for promoting perspiration for the cure of hysteric passion, and of epilepsies, and for expelling poison?' But, notwithstanding all these praises, which are truly questionable, rue is now seldom employed, except in the form of tea, by village doctresses." (*Burnet's Outlines of Botany,* vol. 2. p. 882.) Notwithstanding these observations of Professor Burnet, the medicinal properties of the rue have been spoken of in terms of respect by Lewis, Woodville, Thomson, and other authors; and the following is a summary of their observations. The internal use of the rue is unsafe in large quantities; but eaten with bread and butter, as it very commonly is in France and Germany, a considerable dose may be taken without injury. In Britain, it is given to children as a vermifuge; and, mixed with butter, to poultry, as a remedy for the roup, &c. It is also given to dogs as a cure for the distemper, and is considered by the country people generally as an excellent "cleanser of the blood." By distillation with water, an essential oil is obtained from it; and by infusion in alcohol, a tincture which is warm, pungent, acrid, and penetrating. A conserve, made by beating the fresh leaves with fine sugar, is the most commodious form for using the herb in substance: the extract is given in doses of from 10 to 15 grains. To labouring men, if used with discretion, it might prove a condiment to their food, in the same way as garlic does in France, Spain, and Italy, and onions in most parts of Europe.

Poetical and legendary Allusions. Rue, as it is observed in Martyn's *Miller,* was anciently named herb grace, or the herb of grace; and it is to this day called ave grace in Sussex, in allusion, doubtless, to *Ave Maria, gratiâ plena*; and it is remarkable that Mary, in Hebrew, means bitter. Warburton says that rue had its name, "herb of grace," from its having been used in exorcisms. Ophelia, in Shakspeare's *Hamlet,* says to the Queen, "There's rue for you, and here's some for me; we may call it herb of grace o' Sundays." Herb of grace was, indeed, the common name for rue in Shakspeare's time; and Greene, in his *Quip for an upstart Courtier*, has this passage: —" Some of them smiled, and said rue was called herb-grace, which, though they scorned in their youth, they might wear in their age, and that it was never too late to say *miserere*." The gardener in *Richard II.* says of the Queen,—

" Here did she drop a tear; here in this place,
I 'll set a bank of rue, sour herb of grace:
Rue, even for ruth, here shortly shall be seen,
In the remembrance of a weeping queen."

Perdita, in *The Winter's Tale*, says,—

——— " Reverend sirs,
For you there 's rosemary and rue; these keep
Seeming and savour all the winter long:
Grace and remembrance be to you both."

They are both evergreens, retaining their appearance and taste during the whole year, and, therefore, are proper emblems of remembrance and grace. Rue seems to have been used formerly in nosegays; for the Clown, in *All's Well that Ends Well*, having said of the Countess, " She was the sweet-marjoram of the salad, or rather the herb of grace," Lafeu replies, " They are not salad herbs, you knave, they are nose herbs;" upon which the Clown, in character, remarks, " I am no great Nebuchadnezzar, Sir, I have not much skill in grass;" thus punning upon the name of grace, as the gardener did upon the other name of rue. (*Don's Mill.*, i. p. 779.) " Among the ancients, rue was used in several superstitious practices: ' You are not yet at the parsley, nor even at the rue,' was a common saying with the Greeks to those persons who, having projected an enterprise, had not begun to put it in execution. In ancient times, gardens were edged with borders of parsley and rue; and those persons who had not passed these borders were not accounted to have entered a garden: thence the proverb originated." (*Reid's Historical and Literary Botany*, p. 153.)

Physiological Phenomenon. " Linnæus having observed that the rue moved one of its stamens every day to the pistil, Sir James Smith examined the *Rùta* angustifòlia, and found many of the stamens in the position which he describes, holding their anthers over the stigma; while those which had not come to the stigma were lying back upon the petals, as well as those which had already performed their office, and had returned to their original situation. Trying with a quill to stimulate the stamens, he found them all quite void of irritability: they are strong, stout, conical bodies, and cannot, without breaking, be forced out of the position in which they happen to be. The same phenomenon has been observed in several other flowers; but it is nowhere more striking, or more easily examined, than in the species of rue." (*Don's Mill.*, i. p. 779.)

The Rue as a hardy Shrub. Though the rue is seldom seen in British gardens otherwise than as an herb of 1 ft. or 1½ ft. in height, yet when planted in dry, deep, calcareous soil, and suffered to grow without being cut over, it forms a singularly handsome evergreen shrub, attaining the height of 6 ft., or even 8 ft., in as many years. The manner in which the leaves are cut, their glaucous hue, the profusion of fine dark yellow flowers, which are produced for several months in succession, and often throughout the whole winter, justify us in strongly recommending the rue for cultivation as an ornamental plant. It will not succeed, however, if mixed with other trees and shrubs of rampant growth, nor attain a large size, unless in a sheltered situation, and in a soil that is deep, free, and calcareous. It forms beautiful evergreen separation hedges for cottage gardens; and some fine hedges of this sort, and also large single plants, may be seen in the bottoms of old chalk-pits on the south bank of the Thames, about Gravesend, in Kent. The plant is propagated in the easiest manner, by seeds or cuttings, and requires no other pruning during its whole existence than cutting off the withered flower-stalks. It appears to be a shrub of very great durability. In point of ultimate magnitude, rate of growth, soil, situation, and culture, the rosemary, the lavender, the sage, the hyssop, the thyme, and the more hardy teucriums may be considered as suitable associates for the rue.

App. i. *Half-hardy Species of* Rùta.

The following species of *R*ùta are generally kept in the frame or green-house; but there is little doubt that they would live in very dry soil or in lime rubbish, at the base of a wall, with some protection during severe weather. *R.* pinnàta *L.* (*Bot. Reg.*, t. 307.), a native of the Canary Islands, where it grows to the height of 6 ft.; *R.* bracteòsa *Dec.*, a shrub 2 ft. high, a native of Sicily; *R.* angustifòlia *Pers.* (*fig.* 156.), a native of the south of France, which was considered by Linnæus and others as a variety of the common rue; *R.* macrophýlla *Sol.*, from the north of Africa, where it grows 3 ft. high; *R.* montàna *Clus.*, from the south of Europe, also growing 3 ft. high; *R.* divaricàta *Tenore*, from the south of Italy; *R.* córsica *Dec.*, from Corsica; *R.* albiflòra *Hook.*, from Nepal, which was introduced in 1823, and which is found in the Himalayas, at elevations of from 500 ft. to 800 ft.; together with some other species from Nepal, from the south of Europe, and from the north of Africa; might all, we think, be tried at the base of a conservative wall, with every prospect of success. Perhaps half or more of the sorts above enumerated are only varieties of *R*ùta gravèolens, but the shrub is so truly beautiful in the form and colour of its foliage, in its neat and compact shape, and its numerous flowers, that every variety is well worth cultivating.

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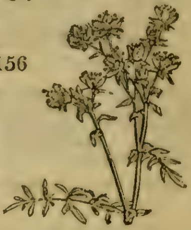

Genus II.

APLOPHY'LLUM *Andr. Juss.* The Aplophyllum, *or Simple-leaved Rue.* *Lin. Syst.* Decándria Monogýnia.

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This genus, which forms a section of *R*ùta in De Candolle's *Prodromus*, was instituted by A. Jussieu in *Mém. Mus.*, 12. p. 464., and is adopted by G. Don. It contains two or three species of small undershrubs, which are hardy, but which are more frequently treated as herbaceous than as ligneous plants.

⌂ 1. *A.* l*inifòlium* G. Don., *R*ùta *l*inifòlia *L.*, (*Bot. Rep.*, 565., and our *fig.* 157.) has entire oblong-lanceolate leaves, and yellow flowers in corymbs. It is a native of Spain, near Valencia, and also of Greece. It was introduced in 1752, grows to about 1 ft. in height, and flowers from July to September.

⌂ 2. *A. suavèolens* G. Don., *R*ùta suavèolens *Dec.*, has spathulately lanceolate glaucous leaves, and yellow flowers in corymbs, smelling like those of Prímula officinàlis. It is a native of Tauria, where it forms a shrub about 2 ft. high; and was introduced in 1800. It flowers from June to September.

⌂ 3. *A. fruticulòsum* G. Don, *R*ùta fruticulòsa *Lab.*, is a native of the country about Damascus. It grows about 1 ft. high, but has not yet been introduced into Britain.

CHAP. XXX.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER XANTHOXYLA`CEÆ.

The genera belonging to this order which contain hardy species are three, Xanthóxylum, *P*tèlea, and *Ailántus*, which are thus distinguished in Don's *Mill.*, i. p. 777.

Xantho'xylum *L.*, and *H. et Kth.* Flowers bisexual. Calyx 3—5-parted, with an equal number of petals and stamens. Carpels 1—5, 2-valved. Leaves simple, ternate, abruptly and impari-pinnate.

*P*te'lea *L.* Flowers bisexual. Calyx 4—5-parted. Petals 4—5. Stamens 4—5. Fruit compressed, 2—3-celled; cells 1-seeded, turgid in the centre, each cell extended into an orbicular reticulated wing. Leaves of 3 leaflets, rarely of 5 leaflets.

Aila'ntus Desf. Flowers polygamous. Calyx 5-cleft. Petals 5. Stamens 10, unequal. Styles 3—5, arising from the notches of the ovaries. Carpels 3—5, membraneous, 1-celled, 1-seeded. Leaves abruptly or imparipinnate.

GENUS I.

XANTHO'XYLUM *L.*, and *H. B. et Kth.* THE XANTHOXYLUM, *or* *TOOTHACHE TREE.* *Lin. Syst.* Diœ'cia Tri-Pentándria.

Identification. Lin. Gen., No. 150. and 1109.; Dec. Prod., 1. p. 725.; Don's Mill., 1. p. 801.
Synonymes. Zanthóxylum (it is thus spelled in many botanical works); Kampmánn*ia* Rafin.; Clavalier, *Fr.*; Zahnwehholz, *Ger.*
Derivation. From *xanthos*, yellow, and *xulon*, wood; from the yellowness of the wood, more especially of the roots. The French name means club tree, and the German name, the toothache tree.

⚘ 1. X. FRAXI'NEUM *Willd.* The Ash-*leaved* Xanthoxylum, *or common Toothache Tree.*

Identification. Willd. Sp., 4 p. 757.; Dec. Prod., 1. p. 726.; Don's Mill., 1. p. 802.
Synonymes. Zanthóxylum ramiflòrum *Mich. Fl. B. A.*, 2. p. 235.; Z. Clàva Hérculis var. *Lin. Sp.*, 1455., *Lam. Dict.*, 2. p. 38.; Z. americànum *Mill. Dict.*, No. 2.; Z. caribæ'um *Gært. Fruct.*, but not of *Lam.*; Clavalier à Feuilles de Frêne, *Fr.*; Eschen-blättriges Zahnwehholz, *Ger.*
Engravings. Du Ham. Arb., 1. t. 97.; Catesb. Carol., 1. t. 26.; E. of Pl., 13896.; our *fig.* 158.; and the plate of this species in Vol. II.

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Spec. Char., &c. Leaves pinnate, of 4 to 5 pairs of leaflets, and an odd one; the leaflets ovate, obscurely sawed, equal at the base; the petiole round and devoid of prickles; prickles in the situation of stipules. Flowers in axillary umbels, without petals: the sexes diœcious. (*Dec. Prod.*, i. p. 726, 727.) A low deciduous tree, a native of North America, from Canada to Virginia and Kentucky, in woods near rivers; cultivated in England since 1740, and flowering in March and April. In its native country, this tree is seldom seen higher than from 12 ft. to 15 ft.; but its stem is decidedly that of a tree rising to the height of from 3 ft. or 4 ft. without side shoots, and then branching out, and forming a regular head. The flowers are yellowish, with red anthers. The bark and capsules are of a hot acrid taste, and are used for relieving the pains of the toothache; whence the popular name. A tincture of the bark is also used for curing rheumatism. This tree is common in British collections, but is never seen of any great size. There is one at Syon, about 13 ft. high; in the Cambridge Botanic Garden, one about 10 ft.; and some at White Knights, from 10 ft. to 13 ft. high. In the Edinburgh Botanic Garden, 10 years planted, it is 6 ft. high. It is generally propagated by seeds or by cuttings of the roots. Plants, in the London nurseries, are 1*s.* 6*d.* each; at Bollwyller, 1 franc and 20 cents; at New York, 25 cents, and seeds 1 dollar a quart.

Variety.

⚘ X. f. 2 *virgínicum*, the X. virginicum of Lodd. Cat., of which there is a plant in the garden of the London Horticultural Society, and several in the arboretum of Messrs. Loddiges, appears to us only a variety of X. *fraxíneum*.

✱ 2. X. TRICA'RPUM *Michx.* The three-fruited Xanthoxylum, *or Toothache Tree.*

Identification. Michx. Fl. Bor. Amer., 2. p. 335.; Dec. Prod., 1. p. 726.; Don's Mill., 1. p. 803.
Synonyme. *Fagàra* fraxinifòlia *Lam. Ill.*, 1. t. 334.
Engraving. Lam. Ill., 1. t. 334.

Spec. Char., &c. Leaves pinnate; the leaflets 3 to 5 pairs, and an odd one, all on short stalks, oblong-oval, acuminate, finely sawed, oblique at the base. Petioles and branches prickly. Panicles terminal. Petals 5. (*Dec. Prod.*, i. p. 726.) A deciduous shrub, a native of Carolina and Florida, introduced in 1806, and flowering in July. Height 6 ft.

♆ 3. X. MI'TE *Willd.* The smooth, *or thornless*, Xanthoxylum, *or Toothache Tree.*

Identification. Willd. Enum., 1013.; Dec. Prod., 1. p. 727.; Don's Mill., 1. p. 802.

Spec. Char., &c. Thornless. Leaves impari-pinnate, downy beneath. Flowers axillary. (*Dec. Prod.*, i. p. 727.) Introduced from North America in 1812, and said to be a tree growing to the same height as X. *f*raxíneum, with flowers of the same colour, and produced in the same months. It may, possibly, be only a variety of the X. *f*raxíneum, as Gleditsch*ia* inérmis is only a variety of G. triacánthos.

App. i. *Half-hardy Species.*

The species of this genus are not very ornamental, otherwise, there are some others, which are natives of China and Japan, which might be tried against a conservative wall: see the enumeration of all the species that have been introduced into Britain, in our *Hortus Britannicus.*

GENUS II.

PTE'LEA *L.* THE PTELEA, *or SHRUBBY TREFOIL.* *Lin. Syst.* Monœ'cia Tetra-Pentándria.

Identification. Lin. Gen., No. 152.; Dec. Prod., 2. p. 82.; Don's Mill., 1. p. 806.
Synonymes. *Bellùcia* Adans.; Orme de Samarie, *Fr.*; Lederblume, *Ger.*

♆ 1. *P.* TRIFOLIA'TA *L.* The three-*leafleted*-leaved Ptelea, *or Shrubby Trefoil.*

Identification. Lin. Sp., 173.; Willd. Sp. Pl., 1. 670.; Dec. Prod., 2. p. 82.; Don's Mill., 1. p. 806.
Synonymes. Orme de Samarie à trois Feuilles, *Fr.*; dreyblättrige Lederblume, *Ger.*
Engravings. Dill. Elth., t. 122.; Mill. Ic., t. 211.; N. Du Ham., t. 57.; Hayne Abbild., t. 74.; Schmidt Arb., 2. t. 76.; and the plate in our Second Volume.

Spec. Char., &c. Leaf of three leaflets that are ovate acute, the middle one much tapered towards its base. Flowers in corymbs, usually tetrandrous. (*Dec. Prod.*, ii. p. 82.) A shrub or low tree from North America, where it is found from New York to Carolina in shady moist hedges, and on the edges of woods among rocks. It was introduced in 1704, and produces its small greenish white flowers in corymbose clusters in June and July. These are succeeded by flattened winged capsules, somewhat resembling those of the elm; whence the French name of *orme.*

Varieties.

P. *t.* 2 *pentaphýlla* Munchh. Hans., 3. p. 342., has 5 leaflets; but we have not seen a plant.
P. *t.* 3 *pubéscens* Pursh has pubescent leaves, and is a native of Pennsylvania; but we are not aware of its being in cultivation in Britain.

Description, &c. When this plant is pruned up with a single stem, it forms a handsome low tree with a hemispherical head; but in British gardens it is more frequently found as a large shrub, with numerous stems proceeding from the same basal point. The species was originally sent to England by Banister, and plants of it were raised by Bishop Compton at Fulham; but they were lost, and the plant was reintroduced from Carolina by Catesby in 1724. Being hardy, and of easy culture in any common soil, the tree is not uncommon in collections; and it well deserves a place there, both on account of the beauty of the leaves, and of the fruits, and the handsome general form of the tree. It is easily propagated by cuttings (put in in the autumn, and covered with a hánd-glass), or by seeds.

Statistics. At Purser's Cross, there is a tree 25 ft. high, with a trunk 14 in. in diameter; at Gloucester Lodge, Brompton, is a somewhat deformed specimen, 16 ft. high, with a trunk 8 in. in diameter at the ground; in Sloane Square is one upwards of 12 ft. high; in the Fulham Nursery, one 12 years planted, and 14 ft. high; in the Hammersmith Nursery, one 5 years planted, 10 ft. high; in Middlesex, near Shepperton, by the road side, a very handsome tree, about 25 ft. high, with the head 30 ft. in diameter; in Surrey, at Claremont, 15 ft. high; in Wiltshire, at Longleat, one 50 years planted, and 18 ft. high, the diameter of the trunk 14 in., and of the head 24 ft.; in Worcestershire, at Croome, 10 years planted, and 15 ft. high. In Scotland, in the Edinburgh Botanic Garden, 15 years planted, and 12 ft. high; in Bamffshire, at Gordon Castle, 45 ft. high, the diameter of the trunk 15 in., and of the head 27 ft., in a loamy soil, and a sheltered situation. In Ireland, at Terenure, near Dublin, 15 years planted, and 8 ft. high. In France, at Paris, in the Jardin des Plantes, 60 years planted, and 37 ft. high, the diameter of the head 40 ft.; at Sceaux, 10 years planted, and 20 ft. high; in the Botanic Garden at Toulon, 10 years planted, and 10 ft. high; at Nerrières, near Nantes, 15 ft.

high. In Saxony, at Wörlitz, 45 years planted, and 25 ft. high; and the variety *P.* t. pentaphýlla, 34 years planted, and 15 ft. high. In Austria, at Vienna, in the University Botanic Garden, 15 ft. high. In Bavaria, at Munich, in the Botanic Garden, 24 years planted, and 18 ft. high.

Commercial Statistics. Plants, in London, cost 1*s.* 6*d.* each, and seeds 1*s.* a packet; at Bollwyller, plants 15 francs a hundred; at New York, 25 cents each, and seeds 1 dollar a quart.

App. i. *Other ligneous Species of* Ptèlea, *hardy and half-hardy.*

✤ P. *monophýlla* Lam. has simple ovate lanceolate leaves, and grows to the height of 4 ft. in Carolina; but, though hardy, it has not yet been introduced.

✤ P. *pentándra* Moc. is a native of Mexico, where it forms a shrub from 6 ft. to 10 ft. in height; P. *podocárpa* Dec. is a Mexican shrub of the same size; and P. *ovàta* Lour. is a simple-leaved species, a native of Cochin-China. These, if introduced, would probably prove hardy or half-hardy.

GENUS III.

AILA'NTUS Desf. THE AILANTO. *Lin. Syst.* Polygàmia Monœ'cia.

Identification. Desf. Act. Acad. Par., 1786., p. 263.; Dec. Prod., 2 p. 88.; Don's Mill., 1. p. 807.
Synonymes. *R*hús *Ehrh.*, *Ellis*, and *Mœnch*; Verne du Japon, *Fr.*; Götterbaum, *Ger.*
Derivation. Ailanto is the name of *Ailántus* glandulòsa *Desf.* in the Moluccas. It was long considered as a species of *R*hús, whence the French name; and the meaning of the aboriginal word being, it is said, Tree of Heaven, hence the German name, Götterbaum, Tree of the Gods.

⚘ 1. *A.* GLANDULO'SA *Desf.* The glandulous-*leaved* Ailanto.

Identification. Desf. Act. Acad. Par., 1786, p. 263.; Dec. Prod., 1. p. 89.; Don's Mill., 1. p. 807.
Synonymes. *A.* procèra *Sal. Prod.*, p. 271.; *R*hús hypselodéndron *Mœnch*; *R.* cacodéndron *Ehrh.*; *R.* sinénse *Ellis*; Aylanthe glanduleux, *Fr.*; drüsiger Götterbaum, *Ger.*
Engravings. L'Hérit. Stirp., t. 84.; Wats. Dend. Brit., t. 108.: N. Du Ham., 1. t. 35.; our *fig.* 159.; and the plate of the tree in our Second Volume.

Spec. Char., &c. Leaves impari-pinnate; the leaflets coarsely toothed at the base; the teeth glandulous on the under side. (*Dec. Prod.*, i. p. 89.) A deciduous tree of the first rank, introduced from China in 1751, and growing to the height of 60 ft. or upwards. In some years, the tree is said to bear only male flowers; and L'Héritier states that only twice in 10 years it bore both male and female flowers at the same time in France. In his time, it had produced fruit in the Jardin des Plantes at Paris, and in the Botanic Garden at Leyden; but in both cases it was immature. It has since, however, produced perfect fruit, from which plants have been raised. It has also ripened fruit at White Knights in England. The flowers, which appear in August, are in large, upright, rather compact panicles, of a whitish green colour, and exhale a disagreeable odour. The fruit resembles the keys of the ash, but is smaller. The leaves are from 3 ft. to 6 ft. in length; those produced by vigorous suckers, in favourable situations, attaining the latter dimensions. The tree grows with great rapidity for the first 10 or 12 years, producing shoots from 3 ft. to 6 ft. in length at first, and attaining the height of 15 ft. or 20 ft. in 5 or 6 years in favourable situations. Afterwards its growth is much slower. The wood is of a fine grain; it has a satiny aspect, and is hard, and well fitted for the purposes of cabinet-making. The tree has a noble appearance when clothed with leaves; and its gigantic boughs and shoots, and its straight, erect, thick

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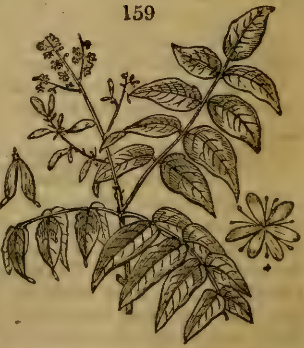

trunk, seem to justify its original appellation of tree of heaven. On the first approach of frost, the leaflets begin to drop, without having previously shown any great change of colour, displaying in this respect a striking difference from the leaves of most species of *Rhús*, to which those of this tree bear a general resemblance.

Geography, History, &c. This species of *Ailántus* is a native of the northern provinces of China, more particularly in the neighbourhood of Pekin. Seeds were sent to England, to the Royal Society of London, by the Jesuit missionary D'Incarville, in 1751; and they were sown by Miller in the Chelsea Botanic Garden, and by Philip Carteret Webb, at Busbridge, in Surrey, in the same year. As the tree produced suckers freely, it was soon generally propagated; and there are many fine specimens of it in different parts of the country. The original tree planted by Mr. Webb was cut down some years ago; but several others, which have sprung up from the roots left in the soil, were in existence about the same spot when we visited it in 1834. (See *Gard. Mag.*, vol. ix. p. 481.) The tree was introduced into France, in 1780, by Mr. Blaikie, and the oldest specimens are at St. Leu, and in the Jardin des Plantes. We have not heard of the timber having been applied to any useful purpose in Europe, because trees of a large size are not yet sufficiently numerous to admit of their being cut down for profitable application. In France and Italy, it is much valued as a tree for shading public walks, and is planted for that purpose along with the tulip tree, the horsechestnut, the platanus, and other large-leaved exotic trees. Its leaves are not liable to be attacked by insects, which is a very great recommendation, and they continue on the tree, and retain their green colour, till the first frosts in November; when the leaflets drop suddenly off, the petioles remaining on often a week or two longer. The tree grows in any soil, though one that is light and somewhat humid, and a sheltered situation, suit it best. In France, it is said to thrive on chalky soils, and attain a large size, where scarcely any other tree will grow. It is readily propagated by cuttings of the roots. It might probably be found a valuable tree to be treated as coppice, and cut down every third or fourth year for fuel.

Statistics. A. glandulòsa in the Environs of London. The largest tree is at Syon; it is 70 ft. high, the diameter of the trunk 3 ft. 10 in., and of the head 40 ft.; the trunk forms an erect column of about 30 ft. before it branches, and the head is hemispherical. This tree flowers and fruits occasionally. At Kew there is a tree 60 ft. high; in the Fulham Nursery, one 50 ft. high; in the Mile End Nursery, one 36 ft. high, with a trunk 2 ft. in diameter; the leaves, even in the tree of that age and height, measuring 4 ft. 6 in. in length. At Fulham Palace there is a tree, 20 years planted, which is 25 ft. high. In the London nurseries, plants are frequently to be met with, of two or three years' growth, 12 ft. high.

A. *glandulòsa South of London.* In Kent, at Cobham Hall, 20 years planted, and 36 ft. high, the diameter of the trunk 1 ft., and of the head 15 ft. In the Isle of Jersey, in Saunders's Nursery, 10 years planted, and 16 ft. high. In Sussex, at Langham Park, 9 years planted, and 12 ft. high; at Kidbrooke, 30 years planted, and 30 ft. high.

A. *glandulòsa North of London.* In Bedfordshire, at Ampthill Park, 3 years planted, and 12 ft. high. In Berkshire, at White Knights, there are several trees, 19 years planted, and from 27 ft. to 30 ft. high, the diameter of the trunks about 9 in., and of the heads about 30 ft.: these trees produce flowers every year, and fruit occasionally. In Buckinghamshire, at Temple House, 3 years planted, and 7 ft. high. In Cambridge, in the grounds of St. John's College, there are two trees, both near the river Cam, one of which is 40 ft. high, with a trunk 2 ft. 7 in. in diameter. In Warwickshire, at Combe Abbey, 10 years planted, and 12 ft. high; in the Handsworth Nursery, near Birmingham, 12 years planted, and 16 ft. high. In Worcestershire, at Croome, 45 years planted, and 60 ft. high, the diameter of the head 90 ft.

A. *glandulòsa in Scotland.* In Berwickshire, at the Hirsel, 3 years planted, and 6 ft. high. In Perthshire, at Kinfauns Castle, 8 years planted, and 16 ft. high. In Stirlingshire, at Airthrie Castle, 10 years planted, and 25 ft. high. In Sutherlandshire, at Dunrobin Castle, 43 ft. high, the diameter of the trunk 1 ft. 6 in., and of the head 33 ft.

A. *glandulòsa in Ireland.* At Dublin, in the Glasnevin Botanic Garden, 20 years planted, and 18 ft. high; at Terenure, 20 years planted, and 14 ft. high. In the Clonmel Nursery, 15 years planted, and 14 ft. high. In the Kilkenny Nursery, 35 years planted, and 21 ft. high.

A. *glandulòsa in Foreign Countries.* In France, at Paris, in the Jardin des Plantes, 68 ft. high, with the head 44 ft. in diameter, flowering most years, and ripening seeds occasionally; at St. Leu, where it was planted on a large scale by Mr. Blaikie in 1794, it is 80 ft. high, with a trunk from 3 ft. to 3¼ ft. in diameter; in the Botanic Garden at Toulon, 50 years planted, and 60 ft. high; at Nerrières, near Nantes, 40 years planted, it is 50 ft. high. At Geneva, at the entrance to the Botanic Garden, there is a tree, from 45 ft. to 50 ft high, the trunk of which, in 1835, measured 7 ft. 3 in. in circumference at the surface of the ground; when in flower, the disagreeable odour which proceeds from it is felt at a distance of nearly a quarter of a mile (*cinq minutes de distance*); and its suckers occupy the ground for 40 ft. or 50 ft around it in every direction. In Saxony, at Wörlitz, a tree, 20 years planted, is 25 ft. high. In Austria, at Vienna, in the University Botanic Garden, 40 years planted, it is 35 ft. high; in Rosenthal's Nursery, 20 years planted, and 30 ft. high; at Brück on the Leytha, 40 years planted, and 42 ft. high. In Prussia, at Sans Souci, 30 years planted, and 20 ft. high; at the Pfauen Insel, 8 years planted, and 22 ft. high. In Bavaria, at Munich, in the Botanic Garden, 20 years planted, and 20 ft. high. In Hanover, at Göttingen, in the University Botanic Garden, 10 years planted, and 30 ft. high. In Cassel, at Wilhelmshöhe, 60 ft. high. In Sweden, at Lund, in the Botanic Garden, 2 years planted, and 4 ft. high. In Italy, at Monza, 29 years planted, and 60 ft. high.

Commercial Statistics. Plants, in the London nurseries, are 1*s.* 6*d.* each; at Bollwyller, from 1 franc to 1 franc 50 cents; at New York, ?.

CHAP. XXXI.

OF THE HARDY AND HALF-HARDY LIGNEOUS PLANTS OF THE ORDER *C*ORIA'CEÆ.

This order consists of only one genus, of which there is one species quite hardy, and one or two others, natives of New Zealand and Nepal, which are probably half-hardy.

Genus I.

*C*ORIA'RIA *Niss.* The Coriaria. *Lin. Syst.* Diœ'cia Decándria.

Identification. Niss. in Act. Par., 1711. t. 12.; Dec. Prod., 1. p. 739.; Don's Mill., 1. p. 818.
Synonymes. Redoul, *Fr.*; Gerberstrauch, *Ger.*
Derivation. From *corium*, a hide; *C. myrtifòlia* being used both in tanning leather and in dyeing it black.

Gen. Char., &c. *Flowers* either hermaphrodite, monœcious, or diœcious. *Calyx* 5-parted. *Petals* 5, sepaloid, smaller than the lobes of the calyx. *Stamens* 10, hypogynous, 5 between the lobes of the calyx and the angles of the ovarium, 5 between the petals and the furrows of the ovarium. *Anthers* bursting by longitudinal slits. *Style* none. *Stigmas* 5, long, awl-shaped. *Carpels* 5, surrounding a fleshy axis; when ripe, close together, but separate, not opening, 1-seeded, surrounded with glandular lobes. *Ovule* and seed pendulous. *Albumen* none. *Embryo* straight. — Branches square, opposite. Leaves opposite, simple, 3-ribbed. (*Lindley, Introd. to N. S.*, and *Key.*)

♣ 1. *C.* MYRTIFO'LIA *L.* The Myrtle-leaved Coriaria.

Identification. Lin. Sp., 1467.; Dec. Prod., 1. p. 739.; Don's Mill., 1. p. 818.
Synonymes. Fustet des Corroyeurs, or Redoul à Feuilles de Myrte, *Fr.*; Myrtenblättriger Gerberstrauch, *Ger.*
Engravings. Lam. Ill., t. 822.; Du. Ham., 1. t. 73.; Wats. Dend. Brit., t. 103.; and our *fig.* 160.

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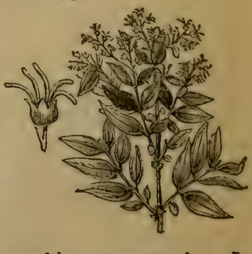

Spec. Char., &c. Leaves ovate-lanceolate, acute, three-nerved, on short foot-stalks, glabrous. Flowers in rather upright racemes. (*Dec. Prod.*, i. p. 739.) A deciduous shrub, growing to the height of from 4 ft. to 6 ft., in the south of Europe and north of Africa, in hedges and waste places. It was introduced into England in 1629, and has since been frequent in collections, flowering from May to August. In its native country, it is said to be used for tanning, and for dyeing black; but whether it is cultivated for this purpose, or merely gathered where found wild, we have not been able to ascertain. In Britain, it is cultivated as an ornamental undershrub, chiefly remarkable for its myrtle-like leaves, and the handsome frond-like form of its branches.

According to Dumont, the leaves, and more especially the berries, are a deadly poison, both to man and animals. The leaves have been employed in France to adulterate senna leaves, and have produced fatal consequences. It is stated by Fée, that several soldiers of the French army in Catalonia became stupified by eating the berries, and three of them died in consequence. The shoots of this plant very frequently die down to the ground; so that it is never to be seen, in Britain at least, with shoots of above 3 or 4 years' growth; but it sends up shoots from its roots freely every year; and these shoots are sometimes 3 ft. or 4 ft. in length.

2. *C.* NEPALE'NSIS *Wall. Pl. As. Rar.*, t. 289., The Nepal Coriaria,

grows in Nepal at heights of from 5000 ft. to 7000 ft., and is applied to the same purposes as *C. myr-tifòlia*; but what is remarkable is, the berries are eaten by the inhabitants.

3. *C.* MICROPHY'LLA *Poir.*, The small-leaved Coriaria,

from Peru; synon. *C.* sarmentòsa *Forst.*, from New Zealand, introduced in 1823; and some other Mexican and Peruvian species not yet in the country, may, probably, be found half-hardy; because, as the great body of the plant is under ground, it may be protected by leaves or litter during winter: even if the top should die down every year, like that of a herbaceous plant, shoots may spring up again from the root every spring.

CHAP. XXXII.

OF THE HARDY LIGNEOUS PLANTS OF THE ORDER STAPHYLEA'CEÆ.

GENUS I.

STAPHYLE'A *L.* THE STAPHYLEA, *or BLADDER-NUT TREE. Lin. Syst.* Pentándria Di-Trigýnia.

Identification. Lin. Gen. No. 374.; Dec. Prod., 2. p. 2.; Don's Mill., 2. p. 2.
Synonymes. Staphylodéndron *Tourn.*; Staphilier, faux Pistachier, *Fr.*; Pimpernuss, *Ger.*
Derivation. Abridged from Staphylodéndron, its name before the days of Linnæus, derived from *staphulē*, a bunch or cluster, and *dendron*, a tree; the flowers and fruits being disposed in clusters, and the plant being ligneous.

Gen. Char., &c. Calyx of 5 coloured sepals, connected at the base, in æstivation imbricate. *Petals* 5, in æstivation imbricate. *Stamens* 5, perigynous, alternate with the petals, and opposite the sepals. A large urceolate disk, or nectary, within the corolla. *Ovarium* 2- or 3-celled, superior. *Fruit* membraneous. *Seeds* with a bony testa, and a large truncate hilum. *Leaves* opposite, pinnate, with both common and partial stipules. *Flowers* in terminal stalked racemes. (*Lindley, Introd. to N. S.*; from the character of the order.)

1. S. TRIFO'LIA *L.* The three-*leafleted*-leaved Staphylea, *or Bladder-nut Tree.*

Identification. Lin. Sp., 386; Dec. Prod., 2. p. 2.; Don's Mill, 2. p. 2.
Synonymes. Staphilier à Feuilles ternées, *Fr.*; Virginische Pimpernuss, *Ger.*
Engravings. Schmidt Baum., t. 81.; N. Du Ham., vi. t. 12.; Hayne Abbild., t. 36.; Krauss, t. 109.; E. of Pl., No. 3823.; and our *fig.* 161. in flower, and *fig.* 162. in fruit.

Spec. Char., &c. The leaf of 3 leaflets, which are ovate, acuminate, regularly sawed, and, when young, pubescent; the style smooth; the capsule bladdery. (*Dec. Prod.*, ii p. 2.) A deciduous shrub, a native of North America, and found from New York to Carolina, on rocks. It was introduced in 1640, and produces its whitish flowers in May and June.

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It grows to the height of 6 ft. or 8 ft. Though this species was cultivated by the elder Tradescant, it has never become very common in British gardens. It is propagated either by seeds or cuttings. Plants, in London, cost 1*s.* 6*d.* each; at Bollwyller, 1 franc; and at New York, 25 cents.

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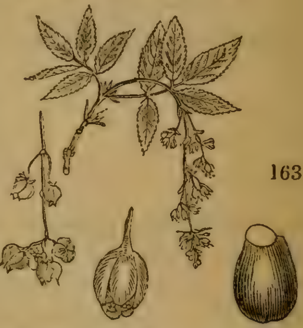
2. S. PINNA'TA *L.* The pinnated-*leaved* Staphylea, *or Bladder-nut Tree.*

Identification. Lin. Sp., 386.; Dec. Prod., 2. p. 3.; Don's Mill., 2. p. 3.
Synonymes. Staphylodéndron pinnàtum *Ray*; Staphilier à Feuilles ailées, *Fr.*; gemeine Pimpernuss, *Ger.*
Engravings. Eng. Bot., t. 1560.; Hayne Abbild., t. 36.; E. of Pl., 3822.; and our *fig.* 163.



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Spec. Char., &c. Leaves pinnate, of 5—7 oblong, perfectly glabrous, serrated leaflets; the flowers in racemes; the capsules membraneous and bladdery. (*Dec. Prod.*, ii. p. 3.) A deciduous shrub, with leaves somewhat like those of the ash or the elder; a native of Europe, in hedges and thickets; and generally considered indigenous to England; though, according to Ray, it was scarcely found in sufficient plenty to be deemed certainly wild. Smith describes it (*Eng. Flor.*, ii. p. 111.) as a smooth branching shrub, throwing up many side suckers. In gardens, it is to be found from 6 ft. to 12 ft. high, and exhibiting a much more luxuriant growth than the preceding species; and forming a singular object, when in fruit, from its large bladdery capsules. Each of these capsules contains a hard smooth nut, which, in some parts of Europe, is strung as a bead by the Roman Catholics. Haller says that the kernels taste like those of the pistacia, and are eaten in Germany by children; and this appears to have been formerly the case in England; for Gerard says the kernels, though sweet at first, are succeeded by a nauseous taste, and, finally, they act as an emetic. The wood is hard, of a yellowish white, and close grained; but it is seldom found of a sufficient size to be applied to any useful purpose. The flowers contain a great deal of honey, and are very attractive to bees. In the London nurseries, the plant is generally cultivated by side suckers, by cuttings put in during the month of September, or by seeds, which are ripened in abundance. The seeds ought to be sown as soon as they are ripe; because, as they contain an oil, they very soon become rancid. They should not be covered with more than half an inch of soil. They will come up the following June, with two large, lance-shaped, seminal leaves; though sometimes they do not come up for two years. Price as in the preceding.

App. i. *Half-hardy Species of Staphylèa.*

S. Bumálda Dec. has leaves like S. trifòlia, and white nodding flowers. It is a native of the mountains of Japan, and was introduced in 1812.

S. heterophýlla Ruiz et Pav. has leaves like S. pinnàta. It is a native of Peru, where it grows to the height of 12 ft.

END OF THE FIRST VOLUME.

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